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Australian Government

Australian Centre for International Agricultural Research

Annual Report 2003–04

Australian Centre for International Agricultural Research

www.aciar.gov.au

The Hon Alexander Downer MP
Minister for Foreign Affairs

The aid program is a crucial part of Australia's broader policy of helping build a more secure and prosperous region. Our aid is contributing in no small part to Australia's national interest by helping create those conditions essential for enhanced regional stability and security, and poverty reduction.

(Source: Twelfth Annual Statement to Parliament by the Hon. Alexander Downer, Minister for Foreign Affairs, 26 November 2003)

MEDIA RELEASE

MINISTER FOR FOREIGN AFFAIRS
ALEXANDER DOWNER

AA 03 083 — Wednesday 26 November 2003

Australia's aid program crucial to more secure and prosperous region

Australia's aid program is playing a crucial role in the Government's broader efforts to build regional security and growth.

As I outlined in the 12th Statement on Australia's Development Cooperation Program in the Federal Parliament today, the links between development and security have never been clearer.

This is why we are pursuing a strengthened engagement with Solomon Islands and Papua New Guinea. This involves the closer engagement of a range of Government agencies, including Treasury and the Australian Federal Police. It is underpinned by our aid program which is concentrated on the areas critical to security and growth - law and order, economic governance and the delivery of health, education and other services.

In our wider region, the aid program continues to place a high priority on preventing conflict and combating terrorism. This includes direct counter-terrorism assistance in countries such as Indonesia and the Philippines. It also includes continuing to make it more difficult for terrorists to find a foothold in the region by strengthening stability, governance and growth.

And as trade liberalisation has the potential to lift millions out of poverty and contribute enormously to greater regional stability, Australia will continue to maintain a strong linkage between our trade and aid policies. This includes continuing to pursue greater market access for goods from developing countries, particularly in agriculture, as well as assistance to help countries maximise the benefits of globalisation.

Australia's aid will amount to an estimated $1.9 billion in 2003-04. In a more uncertain international environment, this assistance remains a strong expression of Australia's commitment to helping our neighbours overcome those sources of instability and insecurity that threaten growth, prosperity and development.

The 12th Statement on Australia's Development Cooperation Program is available at AusAID's website, www.ausaid.gov.au

Contacts: Chris Kenny (Minister's Office) 02 6277 7500 or 041 [illegible] 890
Jo Elsom (AusAID) 6206 4960 or 0412 804 489

Media releases and speeches are available on AusAID's internet site www.ausaid.go

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Australian Government

Australian Centre for
International Agricultural Research

The Hon Alexander Downer, MP
Minister for Foreign Affairs

Dear Minister

30 September 2004

ACIAR Annual Report 2003–04

On behalf of the Board of Management it is our pleasure to present to you the Annual Report of the Australian Centre for International Agricultural Research 2003–04.

The report has been prepared in accordance with section 39 of our enabling legislation – *Australian Centre for International Agricultural Research Act 1982*.

Consistent with section 49 of the *Financial Management and Accountability Act 1997*, ACIAR's Director has taken steps to ensure that the annual financial statements have been prepared in accordance with the *Finance Minister's Orders*. These statements, certified by the Australian National Audit Office, are presented at pages 106–137 of this Annual Report.

In presenting the Annual Report, the Board wishes to acknowledge the highly professional and dedicated way in which ACIAR staff and commissioned research organisations have sought '... to achieve more productive and sustainable agricultural systems, for the benefit of Developing Countries and Australia, through international agricultural research partnerships.'

Yours sincerely

Elizabeth Woods

Professor Beth Woods
Outgoing Chair
ACIAR Board of Management

Meryl J. Williams

Dr Meryl Williams
Incoming Chair
ACIAR Board of Management

cc: The Hon Bruce Bilson, MP, Parliamentary Secretary (Foreign Affairs)

Board resolution

The Board authorised the outgoing and incoming Chairs to finalise ACIAR's Annual Report 2003–04 taking into account the views of Board members as expressed on the draft presented at BOM 96.

Decision 96/10
25 August 2004

The Board

Outgoing Chair
Professor Beth Woods
Resigned 19 July 2004

Incoming Chair
Dr Meryl Williams
Appointed 5 August 2004

Members
Mr Peter Corish
Mr Michael Taylor
Dr John Williams

Director
Mr Peter Core

Photo: ACIAR Board of Management from left to right, Dr John Williams, Mr Peter Corish, Mrs Heather Crompton (Policy Secretariat Manager), Dr Meryl Williams (Chair), Mr Michael Taylor and Mr Peter Core.

Our Functions—Section 5, ACIAR Act 1982, and Our Objectives—ACIAR's Corporate Plan 2001–06

Our Functions

Section 5 (1) – ACIAR Act 1982

(a) Formulate programs and policies with respect to agricultural research for either or both of the following purposes:
  (i) Identifying agricultural problems of developing countries;
  (ii) Finding solutions to agricultural problems of developing countries;
(b) Commission agricultural research by persons or institutions (whether the research is to be conducted in Australia or overseas) in accordance with such programs and policies;
(c) Communicate to persons and institutions the results of such agricultural research;
(d) Establish and fund training schemes related to its research programs;
(e) Conduct and fund development activities related to its research programs;
(f) Fund international agricultural research centres.

Our Objectives

ACIAR's Corporate Plan 2001–06

- Be aligned with Australian Government regional priorities;
- Have flexible and realistic funding arrangements;
- Broker support beyond project life;
- Demonstrate impacts from a majority of projects;
- Align investments with partner country and Australian farmer priorities;
- Have transparent, streamlined and disseminated processes;
- Communicate effectively with selected groups;
- Provide training that meets human resource needs of targeted customers;
- Have a skilled workforce focused on tasks that enhance ACIAR outputs, and
- Achieve international recognition for its work.

Vision

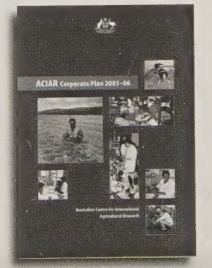
ACIAR looks to a world where poverty has been reduced and the livelihoods of many improved through more productive and sustainable agriculture emerging from collaborative international research

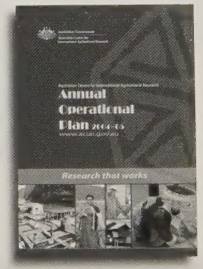
Mission

To achieve more productive and sustainable agricultural systems, for the benefit of Developing Countries and Australia, through international agricultural research partnerships

Outcome

Agriculture in developing countries and Australia is more productive and sustainable as a result of better technologies, practices, policies and systems





Contents

Four-year snapshot v

2003–04 at a glance vi

Impact assessment snapshot viii

Message from the outgoing Chair 1

The Director's review 5

Making a difference 10

The year in review 17
- Regional achievements 17
- Papua New Guinea and the Pacific 18
- Southeast Asia 27
- North Asia 53
- South Asia 60
- Southern Africa 71
- Multilateral program 75
- Building research capacity 80
- Communicating research 83
- Measuring research impacts 86

Corporate governance 91
- Accountability framework 92
- Board of Management 93
- Financial accountability and compliance 97
- Risk management 98
- The Director 101
- The Policy Advisory Council 102

Chief Finance Officer's review 104

Financial statements 106

Tracking performance 138
- Against the 2001–06 Corporate Plan 139
- Against the 2003–04 Portfolio Budget Statement 144
- Against the 2003–04 Annual Operational Plan 147
- Against Australia's National Research Priorities 148

Reporting against other statutory requirements 152
- Management of human resources 153
- External scrutiny and auditing 156
- Purchasing and tendering compliance 156

Rice planting in East Timor

Some key messages—ACIAR in 2003–04

- **ACIAR is in the service business:**
  - **with a stronger outward focused emphasis**
  - **stronger partnerships**
  - **more focused efforts to maximise impacts**
  - **better project management practices**
  - **enhanced accountability and greater transparency around our project investment portfolio.**

Appendices **158**

Appendix 1: Basis of authority 159
Appendix 2: ACIAR's outcomes and outputs framework 161
Appendix 3: ACIAR's active research projects 2003–04 162
Appendix 4: ACIAR publications 2003–04 174
Appendix 5: ACIAR staffing statistics 176
Appendix 6: ACIAR Freedom of Information 178
Appendix 7: Ecologically sustainable development and environmental performance 180
Appendix 8: Compliance checklist 185

List of acronyms and abbreviations **188**

Index **190**

Corporate directory **Inside back cover**

Developments since 30 June 2004

On 19 July 2004, the Chair of the Board of Management and President of the Policy Advisory Council, Professor Beth Woods, resigned from both positions.

The Minister for Foreign Affairs announced on 11 August 2004, that Dr Meryl Williams had been appointed Chair of the Board of Management and President of the Policy Advisory Council, effective 5 August 2004. Professor Beth Woods resigned to undertake the position of Executive Director, R&D Strategy to the Queensland Department of Primary Industries and Fisheries.

Four-year snapshot

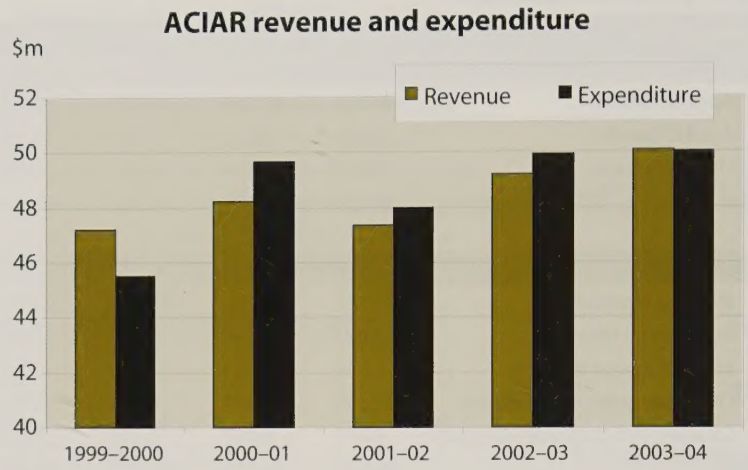
Four-year snapshot

Financial ($m)	2000–01	2001–02	2002–03	2003–04
Revenue				
Appropriation	44.743	45.369	46.278	46.832
AusAID funds	2.562	1.613	2.543	3.169
Other revenue	0.922	0.394	0.381	0.073
Total	48.227	47.376	49.202	**50.074**
Expenditure				
Bilateral research	27.162	26.239	28.434	27.812
Multilateral research	10.994	10.461	9.827	10.181
Education and training	2.051	2.025	2.511	2.464
Other program expenditure	1.399	1.230	0.913	1.160
Salaries and corporate support[1]	8.073	8.051	8.216	8.378
Total	49.679	48.006	49.901	**49.995**
Operations				
Collaborative research				
Projects active in FY				
Bilateral	170	182	189	192
Multilateral	37	36	30	29
Projects started in FY				
Bilateral	58	38	39	38
Multilateral	10	8	5	8
Projects extended in FY				
Bilateral	21	29	30	33
Multilateral	9	8	4	5
Projects reviewed in FY[2]	15	23	26	34
Projects completed in FY	35	44	43	50[3]
Building capacity				
Non-project specific training courses	16	13	11	8
Fellowships				
John Allwright Scholars in FY	38	40	51	50
Scholarships awarded in FY	6	20	16	6
John Dillon Fellows in FY[4]	n.a.	n.a.	4	3
Our staff				
Staff – Public Service Act (FTE)	51.8	49.6	45.7	44.3
Overseas officers – Locally engaged (FTE)	17	19	18.8	18.8

[1] Salaries and Corporate Support excludes travel costs directly related to bilateral research expenditure.
[2] Includes both bilateral and multilateral projects.
[3] Includes both bilateral and multilateral projects concluded or due to be concluded as at 30 June 2004. Some of these projects may be extended following a review process.
[4] The John Dillon Fellowship Scheme started in 2002–03.

ACIAR

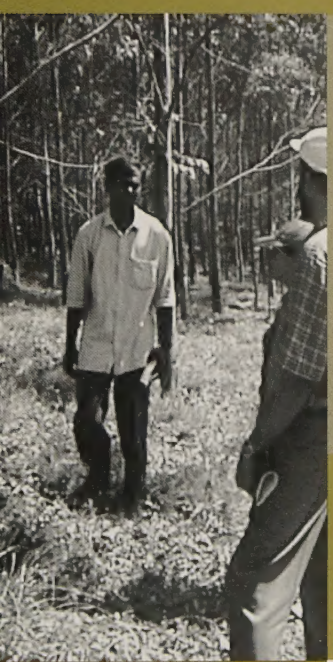
2003–04 at a glance



Project partnerships 2003–04

Overall research expenditure of around $38m, including on:

- over **220** active projects under management
- **46** new projects
  50 completed projects.



Eucalyptus plantation in Munnar, Kerala

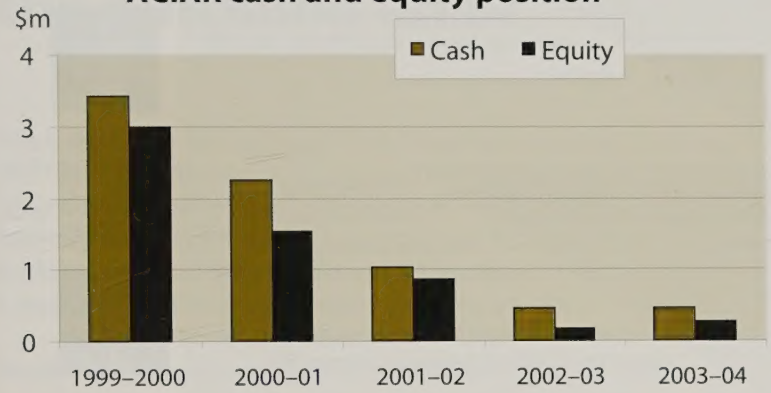
Key research-related publications on:

- Developing agricultural solutions with smallholder farmers: How to get started with participatory approaches (in four Asian languages)
- Pig husbandry in New Guinea
- Eucalypts in Asia
- Breeding of drought-resistant peanuts
- Agriculture: new directions for a new nation—East Timor
- Cooperatives: issues and trends in developing countries
- Contract farming in Indonesia: smallholders and agribusiness working together
- Chromolaena in the Asia-Pacific region
- Feeds and feeding for inland aquaculture in Mekong Region countries.

Next steps 2004–05 will be:

- development of a new draft of the ACIAR Corporate Plan:
  - for discussion with stakeholders before finalisation in 2005–06
- implementation of the Annual Operational Plan 2004–05, consistent with the Government's:
  - international development cooperation program
  - National Research Priorities
- review of funding arrangements for the International Agricultural Research Centres:
  - new arrangements to apply on 1 July 2005
- implementation of the post Uhrig Governance Framework
- new Certified Agreement to apply on 1 August 2005

ACIAR cash and equity position



Ensuring value for money

- Much stronger **involvement of NGOs** such as World Vision, in extension projects based on earlier research-focused projects. Examples include:
  - adoption of low pesticide technologies
  - low-cost feeds for fish farming
- High rates of return demonstrated from ex post **project impact assessments**
- New focus on **looking back at the results of completed projects**. In 2003–04, 12 adoption studies done on projects completed in 1999–2000
- In-depth **review of the John Allwright Fellowship Scheme** completed in 2003–04
  - 91 per cent of all Fellows completed their higher degree
  - 80 per cent are still employed by the same employer who released them
  - more than 100 Fellows have now been trained.

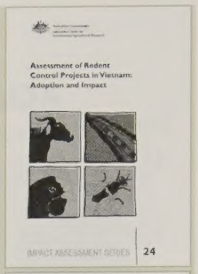
REACHING OUT TO PARTNERS

WITH RESEARCH THAT WORKS

Impact assessment snapshot

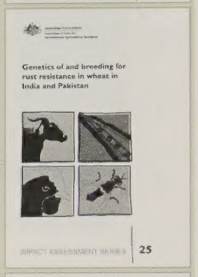
Assessment of rodent control projects in Vietnam: Adoption and impact

Rodent control projects in Vietnam showed an average farm-level benefit:cost ratio of 22:1 and net present value of A$1,565 per hectare



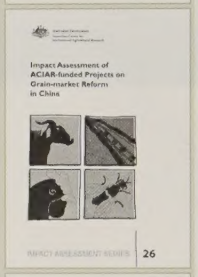
Genetics of and breeding for rust resistance in wheat in India and Pakistan

Projects that enhanced rust resistance in wheat in India and Pakistan and provided training, produced a benefit:cost ratio of around 17:1 and ensured greater expertise in wheat disease management



Impact assessment of ACIAR-funded projects on grain-market reform in China

Grain market reforms in China that resulted in less interventionist policies, a project with a benefit:cost ratio of 5:1

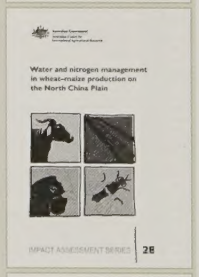


Acacia hybrids in Vietnam

Vietnam has made extensive use of hybrid acacias. The present value of the benefits from the project is estimated at A$152m over the 30 year time horizon—a significant return on a relatively modest ACIAR investment of A$1.04m

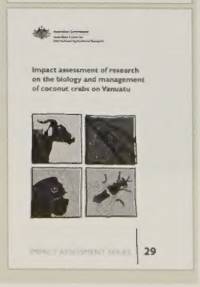
Water and nitrogen management in wheat-maize production on the North China Plain

A project on better water and nitrogen management for wheat/maize production systems on the North China Plain had an assessed benefit:cost ratio of 77:1, reduced farm input costs by 12–18 per cent and increased net income by between A$50 and A$109 per year for each farm



Impact assessment of research on the biology and management of coconut crabs on Vanuatu

A suite of projects that improved the management of coconut crabs on Vanuatu ensures sustainability of household incomes from crab collection by between A$2,000 and A$2,700 per year and had an assessed benefit:cost ratio of 5:1



Message from the outgoing Chair

This is the fourth Annual Report that I have oversighted as the Board Chair and I write this message with sadness as it will be my last as Chair. I have resigned from the positions of Board Chair and President of the Policy Advisory Council, effective 19 July 2004. I was first appointed to these positions on 1 June 2000 for a three-year term and then re-appointed for a second term of three years.

My decision to resign early has been prompted by my secondment to a senior position with the Queensland Department of Primary Industries and Fisheries. I have come quickly to the view that the best interests of ACIAR will be served by my standing down from the Board and the Policy Advisory Council.

John Williams and Beth Woods in Papua New Guinea

The ACIAR Board is, under s7 of the enabling legislation, "…responsible for the conduct and control of the affairs of the Centre". The Board approves all projects over $165,000 under a delegation from the Minister (which we carefully exercise in a way which incorporates the government's broader policy agenda into the decision-making). The Queensland Department of Primary Industries and Fisheries is a key provider of contract services to ACIAR and the particular position that I have taken up will deal directly with Queensland's primary industries' research agenda and its relations with ACIAR. It was clear to me that it would only be a short time before conflicts of interest made my Board role unworkable. My resignation was the only appropriate course.

Looking back on the Board

The small size of the ACIAR Board—five members—has its strengths and weaknesses. The intimacy of a small Board provides the opportunity for all members to participate actively in the agenda. All the ACIAR Board members with whom I have served have brought special and different skills to their roles and all are senior leaders in their respective fields. Undoubtedly all have a high opportunity cost on their time and, with those pressures, I have reached a personal view that **there is a case for a small increase in Board size**. Whether it is appropriate for the Minister to consider changes to the existing governance arrangements will need to await the Government's decisions on the 'Uhrig Review of corporate governance of Federal Government statutory bodies and office holders'.

Beth Woods and ACIAR Board with PNG cocoa breeders

Turning to the broader issues of governance, **ACIAR's Board is responsible for the normal duties expected of any Board**: reviewing the strategy and the budget allocations, monitoring performance, approving large investments (in our case more than $165,000), oversight

of the performance of the Director (that is, the CEO), management succession planning, ensuring major risks are identified and managed, and ensuring that the organisation's operations are compliant with legal requirements.

During my tenure as Chair, the Board assumed responsibility for the process of the **Director's selection and performance evaluation**. The appointment of the Director of ACIAR is subject to Cabinet and Executive Council consideration, but the Minister has given the Board the job of search and nomination. I believe this to be an important Board role and I want to place on record my appreciation to the Minister for his confidence in the Board. As a Board we are directly accountable to the Minister. We have been fortunate that the Minister has monitored these accountabilities in a way that has been both supportive and questioning.

Another important advance during my term has been building **strong links between the ACIAR** Board and the Director-General of **AusAID**, Bruce Davis. Together I believe we have created new opportunities for our organisations to work more closely and effectively.

More broadly, it has been a pleasure to work with the Minister and with my fellow Board colleagues. **Governance is about people** and, over the period, we have fostered mutual respect, trust and an open, knowledgeable debate. As a Board we have been united in seeking to discharge our governance obligations appropriately while also looking for new opportunities to apply ACIAR's funds and efforts to reducing rural poverty in the Asia-Pacific region.

Looking back on ACIAR operations

ACIAR and its Australian partners have **achieved much in difficult circumstances**. It is not easy designing projects and working in different countries and different institutional frameworks. Establishing effective research platforms is not enough. ACIAR has an obligation to ensure that projects are designed in ways that will lift farmer incomes, particularly of the poorest farm families. We are, after all, part of the Australian Government's overseas aid program that seeks to help build a more secure and prosperous region. Poverty reduction is central to this.

Beth Woods inspecting sugar cane in Papua New Guinea

Over recent years two factors have challenged ACIAR's capacity to deliver. The first is **security**, an issue that faces both ACIAR and its Australian research partners. This difficult issue is being managed by the Centre Director and his contractor counterparts. It hasn't precluded us doing our job, but it has made it more difficult. It is a tribute to ACIAR staff and project teams that our long-standing relationships have not been put aside and our work has mostly continued.

The second issue that ACIAR has had to confront is the **constant budgetary pressure facing most Australian research partners**. This financial pressure means that there must be very clear Australian benefits

for these providers to contribute significantly to ACIAR-funded projects. In response to this situation, ACIAR is increasing its budget support on particular items in the contract deliverables. ACIAR has to stay focused on its aid-related mission but operate in a way that continues to recognise the importance of Australian benefits. The model of partnership between Australian and partner country scientists has delivered successfully over the years of ACIAR's operations; the partnership benefits are much greater than the effects of simply providing money for agricultural research in partner countries.

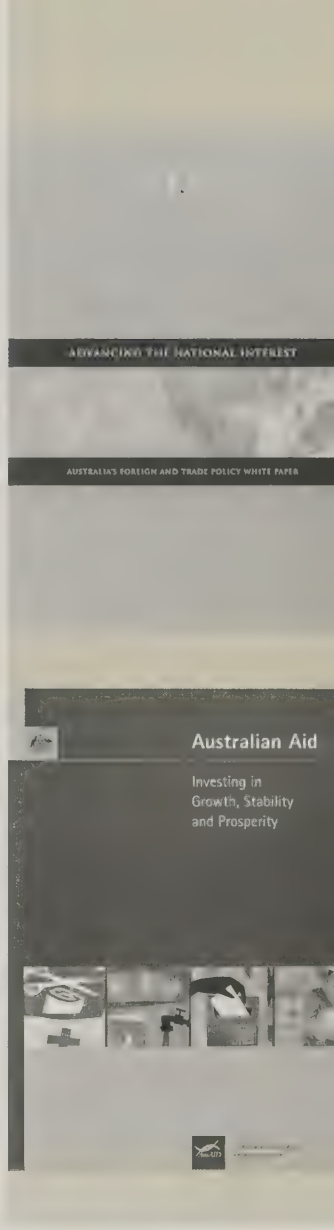
Looking ahead

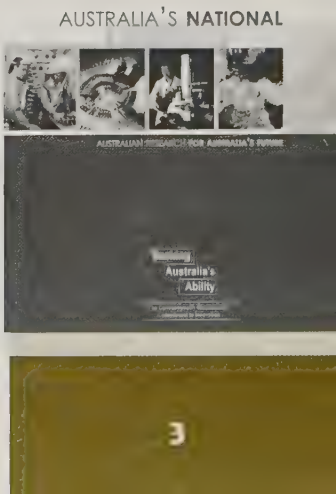
ACIAR has been in operation for twenty-two years. **It is a success story**, enjoying strong bilateral political support. We had no *a priori* right to that support—it has been earned and it has to be re-earned continuously. To do that, ACIAR management and staff must anticipate change and remain responsive. Simply re-doing what worked in the past has no place in ACIAR.

I am confident that **ACIAR is in good hands**—the Board, the Policy Advisory Council and all ACIAR's people here and overseas are people of talent and dedication. It has a strong set of research partners. And the incoming Chair is superbly equipped to provide strategic leadership. Meryl William's experience provides the ideal fit with her new responsibilities.

My thanks to all those who have supported me as Chair—it has been an experience and an organisation I will cherish always. I must record particularly my thanks to the leaders of ACIAR during my term—Peter Core, Michael Brown, John Skerritt, and Bob Clements—who represent a diverse but outstanding set of skills and capacities. Between them they have ensured that ACIAR has built new areas of activities, new relationships, and continuing success. They have been excellent friends and a great source of wisdom and support.

Beth Woods
Outgoing Chair
ACIAR Board of Management
July 2004


ADVANCING THE NATIONAL INTEREST
AUSTRALIA'S FOREIGN AND TRADE POLICY WHITE PAPER
Australian Aid
Investing in Growth, Stability and Prosperity



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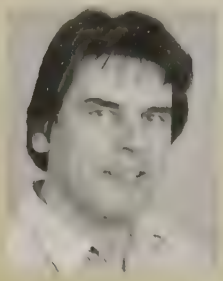

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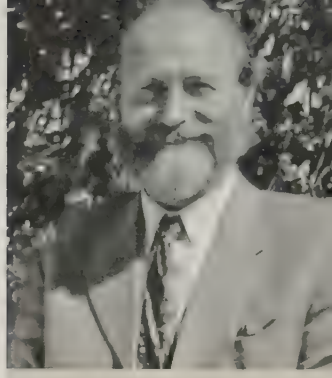
The Director's review



The strategic context

Agriculture is fundamental to the livelihoods of peoples in the Asia-Pacific region. It is the economic heart of our partner countries. Unlocking the potential of their agriculture, forestry and fisheries, when done on a sustainable basis, will do more than anything else to produce results—families that can feed themselves and opportunities for the poor to climb out of poverty. With 70 per cent of the poor in rural areas, lifting incomes from agriculture is a key to improving their livelihoods. No other economic activity generates the same benefits for the poor.

The Green Revolution of the 1970s achieved much. Since 1970, global food production has outpaced population growth but regional differences remain stark. In our region of Asia-Pacific, agricultural productivity has provided the platform for diversified economic growth. But the differences are marked. In India alone, nearly 300 million people still live in extreme poverty. And 65 per cent of the world's poor live in Asia.

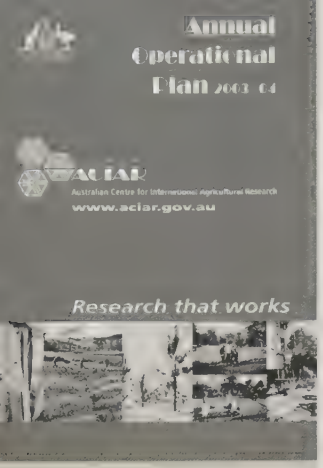
Some have criticised the Green Revolution because of the second generation environmental pressures on soils and water. Others have argued that the Green Revolution did not reach down to the poor. Whatever the criticisms, and some are valid, the reality is that agricultural production has kept pace with population growth due to increased productivity, in part coming from agricultural research.

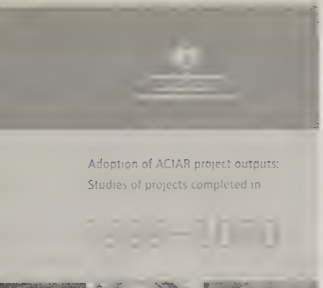
ACIAR was established in the early 1980s to help strengthen the national agricultural research systems in partner countries by creating a union between our agricultural researchers and those in partner countries. In my view, this union has provided enormous benefits to both sides and this Annual Report provides a snapshot of our efforts and results in 2003–04.

Just as in Australian agriculture, ACIAR programs have been grappling with the second generation soil and water problems that are arising. We have, quite rightly, had to broaden our focus beyond productivity-enhancing, enterprise-specific agricultural research to addressing broader environmental pressures. But embedded in all our programs is recognition that it is productivity enhancements that are sustainable and benign to the environment that will unlock agriculture's potential to provide a 'ladder out of poverty', if not for today's farmers then definitely for their children.

"If you can't measure it, you can't manage it."

D. Garvin 1993, Building a learning organisation, Harvard Business Review *July–August 1993.*





ACIAR today

I have been ACIAR's Director for two years now and, in my view, the original architects of ACIAR got it right. The partnership model for agricultural research does produce very significant benefits for partner countries and Australia's overall aid efforts.

But these benefits are very dependent on the way we manage the partnership model, project selection and the synergies that we build with other donors, particularly AusAID. Every model needs to be continually adjusted towards 'best practice' and, in 2003–04, we have made special efforts in four particular areas:

1. getting our priority directions right
2. getting projects with a strong impacts focus
3. getting a stronger 'whole-of-government' focus
4. recognising when to disengage.

Getting our priority directions right

This is an on-going agenda for us, with a number of initiatives coming together in 2003–04. The catalyst for this has been our new Annual Operational Plan (AOP). The overseas membership of our Policy Advisory Council has always provided important inputs, but the members are now making a more significant input into establishing the priority focus areas for our partnerships through their input into the AOP process. Improving the country consultation process is a 'work in progress'. On-going formal and informal dialogue has been stepped up in order to keep priorities fresh and to provide greater focus. Formal consultations are also making their contribution and, in 2003–04, these were held with Pacific countries in November and with Vietnam in February.

Equally, the AOP and its country focus is being used extensively inside the Australian Government with AusAID and DFAT to ensure that our program directions are consistent with broader policy goals. This also applies to Australian research partners such as CSIRO, the State Departments and universities.

We can never say we have 'got it right' but our new AOP, which operated for the first time in 2003–04, did provide a basis for focused dialogue on priority directions.

Getting projects with a stronger impacts focus

This is an 'evergreen' issue for all research-funding agencies. How much to put into the building blocks or basic research compared with near term or applied research? ACIAR is no different, and during 2003–04 we have had vigorous debate about impacts and getting the right balance in the context of program directions.

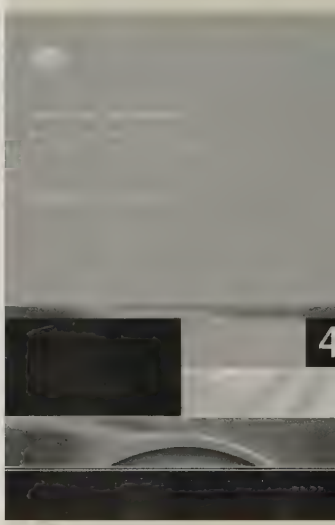
At one level, we have significantly upgraded our ex post project evaluations to demonstrate the impacts of our projects. There is now a system of rolling audits of projects completed three years earlier. We

have increased the number of ex post formal project evaluations and introduced a summary annual reporting arrangement for current projects along with more detailed reporting obligations for completed projects. All of this increases the transparency of our project outputs and outcomes, with the side effect of stimulating project partners to place a greater emphasis on potential impacts.

At another level, we have taken a decision to focus our project selection and design, in part, around time to impact. Projects that have a long gestation period can have significant impacts but they are more risky. For this and other reasons we have decided that we should aim to adjust our projects portfolio so that 40 per cent of new projects are designed to have impacts within five years of completion, 40 per cent within 10 years and 20 per cent within 15 years. This rebalancing process will commence in 2004–05 and will give us a sharper impact focus. A likely outcome of this strategy is a closer alignment with development activities, with AusAID in particular.

Getting a stronger 'whole-of-government' focus

As a small statutory body, ACIAR must work across organisational boundaries. During 2003–04, we worked very closely with AusAID and the Australian Government Department of Agriculture, Fisheries and Forestry in a number of areas. Some examples were the emerging programs in Solomon Islands and East Timor, a trade-related initiative in Africa, and nation-building initiatives in Afghanistan and Iraq. These examples demonstrate how ACIAR is playing its part in a comprehensive whole-of-government response. Another is our contribution to the agenda of the National Research Priorities.



Recognising when to disengage

The 2003–04 year saw us redefining the nature of our partnerships with several countries. These changes will be on-going, with a stronger focus emerging for those partners where the poverty issues are strongest and where in-country capacity is limited.

ACIAR and Thailand have agreed that, with the graduation of Thailand as an aid recipient, only a limited number of new activities, all focused on the implementation of the results of earlier ACIAR projects, will be considered in future. This follows an earlier decision taken by Malaysia and ourselves to complete existing projects but not to commence new ones.

The decision to disengage is a complex one, not one that can be easily captured by a single indicator. Per capita income is an incomplete measure but one that permits country comparisons. Compared with Australia's Gross National Income (GNI) per capita figure of more than $30,000, some comparative numbers for some of ACIAR's partner countries are set out in Table 1.

Table 1. GNI per capita (AUD)

Papua New Guinea	976	East Timor	957
Indonesia	1,307	India	884
Vietnam	792	Pakistan	755
Philippines	1,878	Bangladesh	663
Cambodia	516	China	1,731
Laos	571	Thailand	3,646

Source: Australia's International Development Cooperation 2004–05

Rice seed being planted as part of an ACIAR supported CARDI breeding program for better quality Cambodian rice

By any measure, there is a large number of rural poor in ACIAR partner countries. In China, there are more than 150 million people earning less than US$1 per day. In India, the comparative figure is 300 million. By any standard, much work remains but even in these two partner countries, China and India, the nature of our relationship is changing as these countries go through the process of modernisation, which includes the development of a large (by Australian standards) wealthy population. In China, stronger cost-sharing arrangements now apply and in India, similar arrangements apply with government-funded research partners with our programs in both countries having a stronger emphasis on achieving practical farm level impacts, particularly in poorer regions.

People matters

From an internal perspective, 2003–04 was more about consolidation around the changes introduced in 2002–03: downsizing of some corporate functions, greater operational transparency to stakeholders, a stronger focus on project impacts, and recognition that whole-of-government considerations will be primary to our business directions. ACIAR needed to become less insular and it has. Armed with the Annual Operational Plan, we are now stretching out to stakeholders both here in Australia and in our partner countries.

None of these changes have been easy but they are happening, albeit slowly in some cases. It takes time and the risks of losing momentum are real. The challenge is to continue getting short-term wins, as we have with our restructured website and Annual Operational Plan, that will provide the incentives for ongoing improvements.

More broadly, we are shifting greater responsibility to our 11 program managers who are responsible for delivering an impacts-focused project portfolio for their discipline coverage and best practice services. We are not there yet, but we are creating pathways for program managers to work together in particular country clusters via the establishment of regional coordinators and through assignments to task forces.

It's an old adage but the analogy of the symphony orchestra is relevant to ACIAR—in directional terms an organisation of knowledge specialists underpinned by best practice information systems with a common vision, a view of the whole.

ACIAR's strengths rest on our specialist skills and a capacity to see where agricultural innovation can best feed into rural development and poverty reduction. The agenda is definitely not static and 2003–04 saw the recruitment of new staff to program manager vacancies from retirements. The downside of significant losses in corporate memory has been compensated by new vibrancy and different insight. Opportunities to reshape programs with limited disruption have also been taken.

The job is still ahead of us; particularly for me as the Director in providing the 'vision' in a way that clarifies the directions we need to move. We are

sharpening our operational effectiveness but that is not strategy. The operational agenda is about constant change towards best practices, whereas the strategic agenda is about direction, continuity, making clear trade-offs.

Looking ahead into 2004–05

All of us hope that the international security situation improves in 2004–05. Our own staff and the staff of our partner organisations have continued to operate in difficult circumstances—whether in the shadow of terrorism or severe health warnings. They did this because of their commitment to poverty-reducing agricultural research and the crucial long-term importance of Australia's relationships with countries in our region.

Our operating environment will get better, if not in 2004–05 then the following year. We will continue to stay focused on our central mission within a framework of:

- a greater documentation of project outputs and outcomes
- an open, transparent and accountable relationship with all stakeholders
- a 'whole-of-government' approach at the national level, particularly with all our colleagues in the Foreign Affairs and Trade portfolio
- an intimacy in our overseas and domestic partner relations which ensures that our contracted project portfolio will continue to meet the needs of our partners and lift the incomes of the rural poor.

Peter Core
Director
September 2004

Young peanut seller in East Timor

Some facts

- 80 per cent of our global population have 20 per cent of the world's income.
- Between 60 to 80 per cent of food in developing countries is produced by women.
- 65 per cent of the world's poor live in Asia.
- Around 70 per cent of the world's absolute poor live in rural areas.
- The world has a global population of 6.3 billion which will grow to more than 8 billion by 2030. The population of Asia will have grown by 1.2 billion in this time.
- Nearly 20 per cent of the world's people are now living on less than US$1 per day.
- Most of the world's rural poor depend on agriculture to survive.
- One of the Millennium Development Goals is to halve, between 1990 and 2015, the proportion of people whose income is less than US$1 per day.

Rat trap in the field

Making a difference

Vision
ACIAR looks to a world where poverty has been reduced and the livelihoods of many improved through more productive and sustainable agriculture emerging from collaborative international research

In 2003–04 ACIAR continued to work with a number of extension and non-government organisations to ensure the results of research are disseminated. Outcomes of ACIAR's first project with World Vision, involving farming communities in Thailand, Laos and Vietnam were reviewed during the year and lessons learnt are being applied in the development of similar approaches. Six subprojects worked with farmers and rural communities to incorporate new, low-cost and practical approaches to deliver the results of ACIAR-supported research.

"Australia's assistance is helping reduce rural poverty by increasing opportunities for the poor to generate income by:

- ***increasing agricultural sector productivity***
- ***stimulating non-farm employment***
- ***managing natural resources sustainably"***

(Australian Aid: Investing in growth, stability and prosperity – Statement to Parliament, *Minister for Foreign Affairs, September 2002, page 37)*

Collaborative projects with World Vision

Location of subprojects	Benefits
Songkla, Thailand: introducing low-pesticide technology	510 families growing pesticide-free vegetables 2,000 families benefiting indirectly
Udon Thani/Surin, Thailand: improving aquaculture production	600 smallholders have built household ponds with 1,000 secondary beneficiaries
Chiang Rai, Thailand: low-chill fruit	18,000 seedlings distributed to 1,000 families Two community training and demonstration centres established
Savannakhet, Laos: improving crop yields in rice farming	157 farmers in 32 villages formed farmer groups to trial improved varieties which have demonstrated yield advantages and improved fertiliser use
Vietnam: rodent management	The Vietnamese Government has adopted the Community Trap Barrier System as part of its official integrated rodent management strategy Care International is disseminating information
Bac Binh Province, Vietnam: Soil fertility management	200 farmers involved in trials demonstrating yield improvements for peanuts and improved crop management techniques

Introducing low-pesticide technology

In the Songkla Basin in the south of Thailand ACIAR-supported research proved that chemical runoff was causing significant contamination of drinking water. World Vision worked with hundreds of small farmers in the area, whose livelihoods depend on vegetable production, to introduce low-pesticide technology based on this research. Together they were

able to change horticultural practices to substantially decrease the use of chemicals without affecting economic viability. Adoption of the methods introduced in the project has led to a three to four-fold reduction in the use of chemical fertiliser and insecticides and an increase in farmers' incomes through lower input costs. As well, **farmers have marketed their own 'pesticide-safe' label in local supermarkets for a 20 per cent premium**.

A rubber-tapper who also grew vegetables on an opportunity, part-time basis was trained in the low pesticide technology, and through membership of a small revolving credit group formed by World Vision, purchased drip irrigation equipment and other inputs. His first crops were so successful that he has now moved into full-time farming with his wife, adding value to his produce by selling cooked corn-on-the-cob on local market days. With a great deal of pride he explained to a team reviewing the project that he is now a trainer for other farmers joining the pesticide-safe program.

Improving aquaculture production

Another subproject has successfully introduced new methods of fish farming using low-cost feeds, substantially boosting its profitability. The subproject, based in Udon Thani and Surin provinces of Northeast Thailand successfully demonstrated that community-based fish production enterprises supplying low cost inputs (feed and fingerlings) **increase food security and incomes**. These low-cost feeds utilised locally available resources, backed by simple preparation methods developed during an earlier ACIAR project. Before the World Vision–ACIAR work, locals relied on purchased feeds for fish farming, substantially reducing profit margins and limiting incentives to uptake. The collaboration with World Vision enabled information to be distributed on the preparation of fish diets including financing production of small pelleting machines used to prepare feeds.

Community centres are now operating in Udon Thani and Surin and a large number of training courses have been run at both centres for fish breeding and production of low-cost, farm-made feeds. About 600 people have built small household ponds. Experiments comparing the home-made diets with commercial diets have demonstrated similar or better growth and feed conversion ratios than commercial pellets.

Critical success factors	Key performance indicators	Strategies
Research outputs that clearly align with improvements to productivity and sustainability of agricultural systems	Evidence of uptake and use of research outputs	Build dissemination … pathways into project design and execution, and work with agencies that are committed to deliver benefits

Source: ACIAR Corporate Plan 2001–2006

Dr Kong Luen Heong holds a poster to raise awareness of the dangers of excessive use of pesticides

Collaboration with World Vision has enabled results from ACIAR projects to be extended to many more farmers.

Pellet-making machine for fish feed

Benefits include more feedback to researchers, greater testing of the new methods and better trained extension workers.

World Vision project review

A review of the ACIAR–World Vision project concluded that the collaboration had been very successful, with **five of the six subprojects producing results above expectations**. All the components established effective community groups and have enhanced the capability of local technology providers (research and extension groups) by working closely with local government resource people. ACIAR and its research partners also benefit through feedback on the suitability of their technology; broader testing of the technology; better leads as to future directions; and better trained extension workers.

The World Vision projects and the review have highlighted areas that ACIAR is trying to improve in order to maximise the benefits from its funding of agricultural research and to further enhance impact on rural development. ACIAR is now working on a strategic alliance with Australian Volunteers International, and continues to provide assignments to the AusAID-funded Australian Youth Ambassadors for Development.

Strengthening our Impact Assessment program

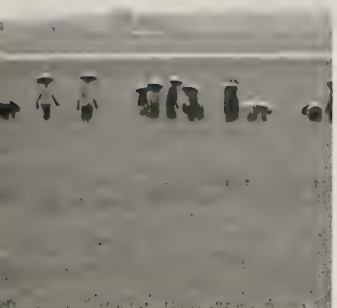
ACIAR impact assessments conducted in 2003–04

Project/ assessment	Cost ($m)	Benefit ($m)
Rodent control in Vietnam*	n.a.	n.a.
Genetics and breeding for rust resistance in India and Pakistan	3.3	57.2
Grain market reform in China	2.7	12.7
Acacia hybrids in Vietnam	1.0	152
Water and nitrogen management to increase agricultural production and improve environmental quality in China	2.8	219
Biology and management of coconut crabs on Vanuatu	0.7	3.2

All figures in A$
** Farm-level benefit calculated at A$1,565/ha*
n.a. Not applicable

Monitoring the impact of completed projects is the focus of ACIAR's Impact Assessment Unit. The Unit commissions impact assessment reports which focus on measuring the economic and dollar returns to agricultural research and the impacts of projects on poverty reduction. Further details can be found on pages 86–90.

Impact assessment reports completed in 2003–04 include an assessment of **rodent control projects in Vietnam** which showed an average farm-level benefit:cost ratio of 22:1 and a net present value of A$1,565 per hectare. Benefits from the projects carried out in five provinces in Vietnam included reduced yield losses, lower rodent populations in project areas, reduced use of toxic rodenticide, decreased use of plastic fence to protect crops, and decreased rodent control costs.



Vietnamese farmers hunting rats

An impact assessment report investigated the economic benefits of ACIAR-funded projects on genetics and breeding for **rust resistance in wheat**. The main objectives of the projects were to investigate and enhance the sources of rust resistance in wheat in India and Pakistan, and to provide training for Indian and Pakistani rust scientists at the National Wheat Rust Control Program at the University of Sydney. The present value of the benefits, calculated over 30 years (A$57.2 million), is well in excess of the present value of the project costs (A$3.3 million), giving a benefit:cost ratio for the projects of around 17:1. Scientists in both India and Pakistan have developed greater expertise in the management of a major disease of wheat and improved capacity in the diagnosis and management of other wheat diseases.

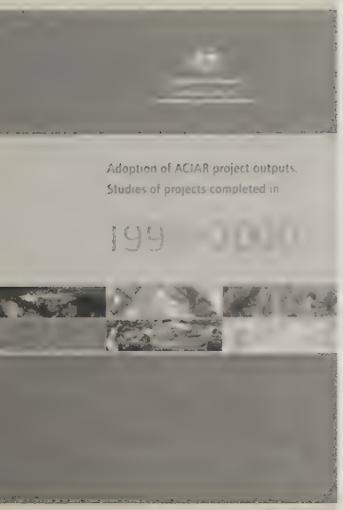
An assessment of two ACIAR-funded projects, conducted as part of a wider research thrust, to demonstrate the benefits of **grain market reform in China**, showed benefits had resulted from advancing the pace of policy reform. The report estimated a present value for the ACIAR-supported component of this body of research of A$12.7 million and a benefit:cost ratio of 5:1, resulting from Government adoption of less interventionist policies.

A project to develop methods for **breeding hybrid acacias** in Malaysia resulted in some remarkable spillover benefits to Vietnam. An impact assessment of the project showed a benefit of A$152 million over 30 years which represents a significant return on the relatively modest investment of A$1.04 million in the ACIAR-funded project. This is due to the rapid adoption of acacia hybrids on a commercial scale in Vietnam and the high yield advantage of the hybrids.

The net present value benefit of bringing forward the commercial release of acacia hybrids by four years in Vietnam is estimated at A$152 million over 30 years.

The ACIAR-funded project, **Water and nitrogen management** to increase agricultural production and improve environmental quality, investigated the efficiency of traditional rates of nitrogen and water use **in wheat-maize production on the North China Plain**. Adoption of the project recommendation results in a 12–18 per cent fall in input costs or an increase in net income of between A$50 and A$109 per year for each farm. In present value terms, over a thirty year time horizon, the economic benefits that accrue to farmers growing wheat and maize on selected areas of the North China Plain is A$219 million. The benefit–cost ratio is 77:1.

A suite of projects, funded by ACIAR and AusAID, aimed to provide a scientific foundation for **improved management of the Vanuatu coconut crab resource** that would benefit the Ni-Vanuatu people. The primary beneficiaries are the poor rural households in remote parts of Vanuatu, who benefit from the considerably larger subsistence catch. The impact on poverty levels also is predicted to be significant for the estimated 600 plus crab collecting households on Vanuatu. For example, a number of collecting households in Sanma Province reported cash earnings from commercial crab harvesting of A$2,000 to A$2,700 per household. The present value over a 50 year period is estimated to be around A$3.2 million resulting in a benefit–cost ratio of 5:1.



Uptake is likely to be enhanced if the extension activities include a strong training component.

"The best, though rarest, aid projects are those that impart knowledge and skills and leave in place technology that is sustainable in local conditions."

D Kingsbury, et al. 2004, Key issues in development, *Palgrave MacMillan, p.8*

Adoption studies—a new initiative

In 2003–04, ACIAR expanded its investment in 'measuring impact' by implementing a system to enable Australian project leaders to undertake adoption studies for all large projects three years after project completion. The main purpose of these adoption studies is to assess the level of uptake of the project results that has occurred since the end of the project, and whether or not the project has made a difference to the social, economic and/or environmental wellbeing of a community. During the year 12 adoption studies were completed. The information gathered from these studies will be used to help guide future investment in ACIAR projects.

Factors enhancing uptake of results

Analysis of the studies showed that uptake tended to be higher in situations where one or more of the following factors applied:

- on-going participation by a core group of in-country scientists who are committed to the project and its outcomes and have local credibility
- a varied and comprehensive approach to communication and dissemination activities that target the right audiences in the right languages
- a strong training component in extension activities to help ensure that new understanding and skills are passed on and are able to be implemented in the field
- establishment of good personal relationships between researchers and next users of the research, including key decision makers.

Community impacts

There was evidence of community-level economic benefits for three research projects that were developed to deliver new technologies or practical approaches. These are the mud crab aquaculture projects in Indonesia and Vietnam, a project to introduce compatible mycorrhizal (root) fungi to eucalpyt plantations in China, and a project on tree establishment and production technologies in the Philippines and Australia.

In the case of the mud crab projects in Vietnam, there has been substantial expansion in mud crab hatchery and nursery production and in the number of grow-out ponds owned and operated by smallholders. As hatchery-produced crablets are cheaper and have a higher survival rate than wild stock, the returns to smallholders from mud crab production have increased.

Compatible mycorrhizal (root) fungi that improve nutrient uptake and growth performance of eucalypts are often missing in exotic eucalypt plantings. The ACIAR project showed how introduced Australian fungi improved growth and establishment of eucalypts in China, and further refined and developed the technologies of incorporating these fungi. This project had a positive impact due to the use of previously unproductive

Building research capacity

"Effective aid to support development is more than just money. Australia's most effective contribution to international development is as a source of ideas and expertise, building the capacity of people and strengthening institutions."
(Australian Aid: Investing in growth, stability and prosperity—*Statement to Parliament, Minister for Foreign Affairs, September 2002, page 22)*

land and greater commercial investment in eucalypt plantations. It is a good example of how a project can leave a legacy of a group of trained scientists to carry on further research, with enough skills, credibility and success to also gain further funding for on-going research. The ability for in-country scientists to obtain further funding is a common success factor of many of the projects.

The ability for in-country scientists to obtain further funding is a common success factor of many of the ACIAR projects.

Projects that can make a difference at the community level through influencing policy changes include ones on land use in Sri Lanka, and the Chinese cattle and beef industries. In Sri Lanka, there is potential to reduce land degradation and increase land viability and economic stability. In China, efficiency of the beef industry has improved, and direct investment by Australia and others has increased.

Building capacity: impacts of the John Allwright Fellowship scheme

To further support the investment in building the agricultural research capacity of our partner countries, ACIAR invests $1.5–1.6 million annually on John Allwright Fellowship (JAF) awards for postgraduate study in Australia by scientists involved in active ACIAR projects.

In terms of employment, career paths and the impact of fellows on their research institutes, the JAF scheme has very positive outcomes

Between January and April 2004, ACIAR conducted a detailed survey of recipients of these scholarships. The overall objective of the survey was to evaluate the impact of the program on the awardees and their institutions. The survey covered all former fellows who had successfully completed their degrees and had returned to their home countries.

Major findings included:

- the success rate of JAFs is very high—91 per cent of those who accepted an award completed a higher degree

Dr Agustina Rahmianna of the Legume and Tuber Research Institute, Malang, Indonesia

- most of the former fellows (80 per cent) are still employed by the same employer who released them to undertake the Fellowship
- almost all (92 per cent) of former fellows regarded their fellowship as totally or strongly related to their current employment position.

The career paths of two former fellows are illustrative of the success of many fellows upon their return home. Dr Agustina Rahmianna of the Legume and Tuber Research Institute, Malang, Indonesia, completed her PhD in 1997 at the University of Queensland. Since graduating she has been promoted from assistant researcher to Chief of the Ecophysiology and Agronomy Research Group and is the leader of an ACIAR project.

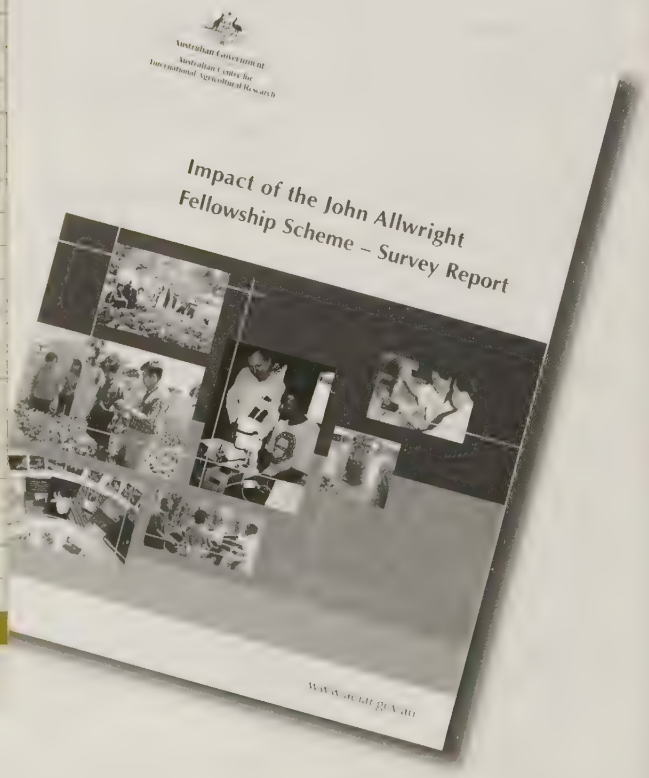
Mr Lauatu Tautea of the Cocoa Board in Rabaul, Papua New Guinea, completed his Master of Economics in 1992 at the University of New England. He has risen from being an economist to Chief Executive Officer of the Cocoa Board. His studies took the Board in a new direction by adding a market economics emphasis to its planning.

The John Allwright Fellowship Scheme has now seen more than 100 young agricultural scientists from 17 developing countries in the Asia-Pacific region graduate with a Masters or PhD, and return to become involved in research in their home country. Many, like Agustina and Lauatu, are making a difference in their own countries.

John Allwright graduates to date

Country	Number of Graduates	Undertaking a Fellowship*
Bangladesh	–	1
Cambodia	1	1
China	16	–
Fiji	3	2
India	3	4
Indonesia	15	7
Kenya	3	–
Kiribati	1	–
Laos	1	–
Malaysia	7	–
Nepal	1	1
Pakistan	3	1
Papua New Guinea	7	11
Philippines	17	6
Solomon Islands	1	1
South Africa	1	–
Sri Lanka	2	1
Thailand	11	–
Tonga	4	–
Vanuatu	–	1
Vietnam	4	7
Zimbabwe	2	1
Total	**103**	**45**

** as at 30 June 2004*


Australian Government
Australian Centre for International Agricultural Research
Impact of the John Allwright Fellowship Scheme – Survey Report

The year in review

Regional achievements 17

Papua New Guinea and the Pacific 18
- Papua New Guinea 19
- Pacific Island countries 23

Southeast Asia 27
- Burma 28
- Cambodia 29
- East Timor 31
- Indonesia 32
- Laos 39
- Malaysia 41
- Philippines 42
- Thailand 46
- Vietnam 48

North Asia 53
- China 54
- Democratic People's Republic of Korea 59

South Asia 60
- India 61
- Pakistan 65
- Bangladesh 66
- Other South Asian countries 67
  - Afghanistan 67
  - Bhutan 68
  - Nepal 69
  - Sri Lanka 70

Southern Africa 71
- South Africa 72

Multilateral program 75

Building research capacity 80

Communicating research 83

Measuring research impacts 86

Regional achievements

The ACIAR Board defines target ranges for research expenditure across the regions in which projects operate. The target ranges reflect regional and country research priorities, the overall aims of Australia's aid program, and ability to deliver results through effective projects across the Asia-Pacific region and beyond. The ranges also allow more flexibility—in project development, implementation timelines and in resource allocation between regions.

Region	Board target
Papua New Guinea and the Pacific Islands	10–20%
Southeast Asia	50–60%
North Asia	10–20%
South Asia	10–20%
Southern Africa	<5%

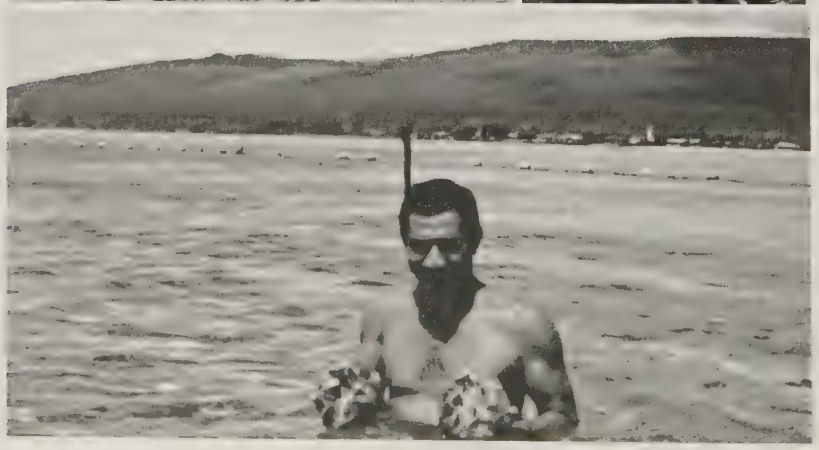
ACIAR regional team leaders: Top: Dr Ken Menz (PNG) and bottom: Mr Barney Smith (Pacific).

Papua New Guinea and the Pacific

Financial year	Regional expenditure	Total bilateral expenditure	Board target as percentage of expenditure
2003–04	$5,067,418	19.8	10-20%
2002–03	$4,754,635	17.9	10-20%
2001–02	$3,126,071	12.8	10-20%

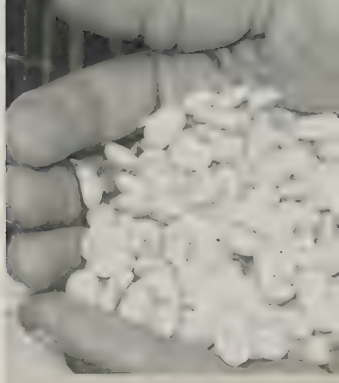
The outlays for Papua New Guinea and the Pacific rose by 1.9 per cent in 2003–04. In the longer term the trend is for expenditure in the region to rise to around 20 per cent, the upper end of the Board target. This is consistent with the trend in the broader Australian aid program, reflecting the importance to Australia of development and stability in the region.

	Page
Papua New Guinea	**19**
Pacific Island countries	**23**



Papua New Guinea

Active projects in 2003–04	32
AOP budgeted expenditure in 2003–04	$2,981,991
Actual bilateral country expenditure in 2003–04	$3,346,297
Bilateral country expenditure in 2002–03	$3,171,113
Bilateral country expenditure in 2001–02	$2,550,738



Coffee beans from Papua New Guinea

Key performance indicators	Performance 2003–04
• Industry directly involved as a partner in at least five projects.	Direct industry involvement in projects on: oil palm income distribution, poultry feeds, peanut production, sugar diseases, vegetable marketing, prawn catch assessment and cocoa diseases (under development).
• At least five active PNG John Allwright Fellowships.	Eleven active John Allwright fellowships at 30 June 2004.
• Revised Barramundi Fishery Management Plan formally approved by National Fisheries Authority Board and an effective process for implementation and ongoing stakeholder consultation established.	Revised PNG Barramundi Fishery Management Plan approved by the NFA Board and gazetted into legislation. The process of community consultation, initiated through this project, is an ongoing activity for NFA.
• 15 undergraduates, scientists and/or journalists to graduate from new scientific communication course, and 15 more to enrol.	Forty graduates in March 2004 graduation and more than 60 new students enrolled in the following year's course.

Position

Papua New Guinea (PNG) is one of ACIAR's most important partners. ACIAR's program in PNG increased significantly over the last two years. In addition to projects funded from ACIAR's appropriation, since 1998 ACIAR and AusAID have worked together to develop and fund a small set of projects of mutual interest to tackle some of the formidable challenges to agricultural development. PNG is a net food importer with high population growth rates. Village-based agriculture supports 70–80 per cent of the population and domestically traded food is very important. ACIAR projects aim to enhance cash income for smallholders, with an emphasis on export tree crops and root crops.

PNG's limited capacity to undertake research and development (R&D) activities and to deliver extension services remain constraints. In its project design ACIAR includes a training component, utilising both short- and long-term training, and where possible to package the results of earlier research in a suitable form for uptake by farmers. To enhance the adoption of research results, ACIAR involves the private sector in applicable projects wherever possible.

Margaret Newman is our Manager for Papua New Guinea and Solomon Islands

Achievements

Zoonotic diseases (diseases of animals that can be transmitted to humans) are an increasing problem in Papua New Guinea and some Pacific Island countries. Diagnostic (ELISA) **tests for the detection of two zoonotic diseases have been developed and validated**. A test for *Leptospira* (the

Mama Lus Frut Scheme

causative agent of leptospirosis), standardised for use in cattle and pigs, has revealed its presence in PNG's cattle herd.

The smallholder broiler chicken industry produces around 6 million birds a year, using feedstuffs derived from imported grains. A research project aims to replace these with home-mixed feeds from locally available materials. The project team has established **an inventory of available local feeds**, and tests are now under way to determine their suitability as substitutes for the imported product.

The mobile card scheme, a non-cash payment system for plantation labourers in the oil palm sector, is soon to be tested more widely. Case studies of the card's use in the oil palm sector revealed **increased production, a more equitable flow of benefits and less conflict** arising from disputes over labour division and payments. The project will focus beyond the original trials and try to replicate this success more widely in the oil palm industry and in the cocoa and coconut industries, working with extension groups in all sectors.

Mapping of the supply chain for fresh produce in the PNG highlands has been undertaken. It is clear that the problems with the supply chain have as much to do with a lack of human infrastructure (communication and coordination) as they do with physical infrastructure. A concept

The Mobile Card scheme – helping improve livelihoods

Palm oil is the leading agricultural export industry in PNG, accounting for five per cent of the country's total export value in 2002. Despite its importance labour constraints in the smallholder sector mean that under-harvesting is a problem. Jenny, the widowed owner of an oil palm block in the Hoskins scheme, West New Britain, was unable to harvest much fruit after her adult sons moved away. Weeding and pruning, essential to maintaining productivity, fell away, as did the block's harvest potential. Jenny and her daughters came to rely on market gardening for their income.

ACIAR has supported research into the application of the 'Mama Lus Frut' scheme, first introduced by the Oil Palm Industry Corporation (OPIC) in 1997. When her sons resided on the block they harvested fresh fruit bunches. Jenny and her daughters supplemented their income by collecting the loose fruit dislodged from the main bunches during harvesting for which, as cardholders, they received payment. After her sons moved away harvesting ceased and 'lus frut' income dried up. The women were forced into greater dependence on food production for household consumption and income. Seeing the potential of her block to generate further income and help pay off debts, Jenny has, since late 2002, used a new payment initiative developed by ACIAR in collaboration with OPIC and the Oil Palm Research Association.

The 'Mobile Card' initiative is a logical extension of the 'mama lus frut' scheme. It guarantees payment of labour to cardholders by the oil palm process of an agreed proportion of the value of the crop harvested. Steven, a previously under-employed resident of a highly populated block, was contracted as the Mobile Card worker for Jenny's block. He receives 50 per cent of harvest payments in return for maintaining the block and harvesting fresh fruit bunches, with the other half paid to Jenny. By August 2003 outstanding debts had been repaid, and new investments to ensure the long-term viability of the block had been arranged. For Jenny the increased production and associated returns have allowed her to do something she has never done before, save money for the future. The use of the card system allows problems associated with payments of contracted labour, such as those driven by culture and poverty, to be circumvented, and both user and suppliers of labour to fulfil their obligations.

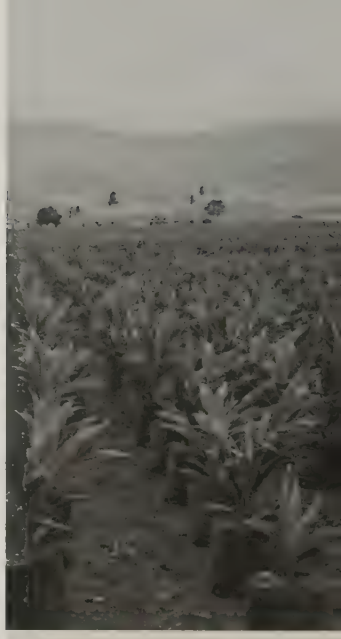
paper has been produced that contains the **vision and strategies for developing the Highland-based fresh produce marketing system**, which has been endorsed by all the industry stakeholders. The Secretary of Agriculture has endorsed the ideas developed in the concept paper and has recommended that they be adopted as a basis for the future development of the fresh produce industry.

Decreases in **coconut productivity** are caused by a variety of factors, including ageing trees and diseases. A project now under way seeks to **improve methods to increase seedling growth, development and establishment**, using zygotic embryos. Improvements to the viability of the peanut industry continue, with surveys revealing that more than 40 per cent of growers regard peanuts as their most important cash crop. Also farmer ignorance of aflatoxin, potentially dangerous to humans, revealed a need for pre- and postharvest management information. Research capacity to test for aflatoxin has also been boosted as a result of these findings, helped by the Agricultural Production Systems sIMulator (APSIM) peanut model that enabled researchers to examine various crop management factors for their impact on yields and aflatoxin risk levels. Varietal trials of **new peanut germplasm have out-yielded local varieties two- to threefold** at all locations, sparking significant farmer interest in their use.

The distribution of pests and diseases of sugarcane has been mapped for PNG, Indonesia and Australia. This completes the first coordinated survey of sugarcane threats in the region, **creating a vital resource for quarantine managers** in all three countries. A resistance screening test for the sugarcane borer *Sesamia grisescens* is also being developed. The little-known *Oribius* weevil, a pest of several horticultural crops, is being studied to determine possible controls. To date scientists have established trials to determine the weevil's impact on key crops and what conditions contribute to larval growth. Classification of several *Oribius* species is also under way. A similar project on the red-banded mango caterpillar has commenced, again focusing on gaining more knowledge of the pest's life cycle.

New infestations of the weed *Chromolaena* have been recorded throughout parts of Papua New Guinea, prompting the release of biocontrol agents. Thirty-eight previously unreported infestations were recorded; most of these emerged as the result of efforts to raise public awareness about *Chromolaena* infestations. At 28 sites a gall fly has been released as a biocontrol agent, with fly field populations increasing at another 26 sites in eight provinces. The fly's appetite for the weed results in plants becoming sickly, and reports of its spread up to 10 kilometres from the point of release **give hope of wider weed control**.

Agricultural research scientists in PNG now have access to a graduate training course to learn procedures and technologies for writing and publishing results. A Graduate Certificate in Scientific and Technological Communication has been accredited by the University of Technology,



Oil palm seedlings

Top: Peter Wai'in, Allwright fellow.
Bottom: Testing animal samples

with 59 students graduating to date. Course graduates are now running workshops at five different Universities, with more than 100 participants now enrolled.

Fisheries remain important sources of income for PNG. A new project is examining the economics of the Gulf of Papua prawn fishery, second only to the PNG tuna fishery in value. A study will help determine appropriate management arrangements to ensure sustainability and profitability. A second and closely linked fisheries project is supporting these activities through an **assessment of stock status and fishing impacts on the prawn fishery**. An essential aspect of this new project is enabling National Fisheries Authority staff to gain skills in fisheries stock assessment and sustainable management.

The collapse of the barramundi fishery in Western and Gulf Provinces of PNG in 1985 led to a loss of both food and income for coastal and inland communities. An ACIAR project led to the **development of a revised Barramundi Fishery Management Plan** that provides the legislative architecture to underpin the continued recovery and future sustainability of this important fishery. In 2003 this Plan was formally gazetted into law under the PNG Fisheries Management Act.

Two tree species with economic potential as producers of essential oils have been identified, and mapping of their distribution is under way. Techniques for harvesting oils are being developed, helped by improvements in distillation. A second project is training scientists from the National Forestry Service to undertake domestication of indigenous species. Conservation strategies for indigenous germplasm are being developed, supported by seed collection. In a third project **capacity in sustainable forest management** is being developed. The project team has developed recommendations to improve planning, inventory and mapping and presented these to the PNG Forest Authority.

Project work to improve cocoa fermentation, drying and quality has led to recommendations for revisions of the PNG Cocoa Inspectors and Assessors Manual and of Export Regulations. Revisions for the design and maintenance of dryers have also been developed and **training in their use is soon to begin**. A survey of microbial contaminants associated with sago has revealed how contamination could occur during village processing. This will be the focus of interactions at the village level, concentrating on identifying potential *critical control point* interventions that can reduce contamination in production and storage.

Oil palm crops planted in volcanic ash soils suffer from magnesium (Mg) deficiency. Modelling of **water and soil profiles has yielded useful information** to assist field trials examining alternatives to standard Mg fertilisers. Responses of oil palms to these alternatives and to Mg fertilisers are also being measured, to determine Mg uptake and to define areas where deficiency is most likely to occur.

Pacific Island countries

Active projects in 2003–04	18
AOP budgeted expenditure in 2003–04	$1,871,100
Actual bilateral country expenditure in 2003–04	$1,721,121
Bilateral country expenditure in 2002–03	$1,583,522
Bilateral country expenditure in 2001–02	$575,333

Coconut palms in Fiji

Key performance indicators	Performance 2003–04
• Priorities consultation successfully delineates both regional and country-specific research priorities for ACIAR in key partners.	Consensus achieved on regional priorities as well as specific priorities for the six main partner countries at December 2003 consultation.
• Growth in proportion of budget for Pacific islands compared with 2002–03.	Expenditure in Pacific Islands grew from 6.0 per cent to 6.7 per cent.
• Impacts of zoonotic diseases (transferable from animals to humans) on livestock production documented in two countries.	In Fiji, leptosporosis has been diagnosed in cattle and dogs and to a lesser extent in pigs, but Trichinella has not been found.
• Forest pest status documented in two countries and initial training in pest identification completed.	Initial training in survey methodology and pest identification completed and surveys conducted in four countries.
• Flexible multi-agency regional program of applied research support to aquaculture development in the Pacific islands initiated.	A Fisheries project utilises mini-projects to address specific constraints to aquaculture development in Pacific Island countries.
• Initial trials on trochus broodstock replenishment completed with two communities in each of Samoa and Vanuatu.	Three restocking sites were selected but the small number of broodstock available limited stocking to one initial trial site.

Position

ACIAR's program in the Pacific Islands region has grown over the past three years. This reflects the importance of a stable and economically viable Pacific and official Australian development assistance priorities for the region. There are many factors constraining socioeconomic development of Pacific Island countries. The region's small renewable resource subsectors are dominated by subsistence agriculture. Commodity exports are an important income source, as is income gained from fishing resources rents and overseas remittances.

Many Pacific Island countries, due to their small size, have limited capacity to participate effectively in ACIAR's normal mode of bilateral collaborative research partnerships. Their participation in regional or multi-country programs and projects addressing common problems partly helps overcome these constraints. Projects are designed to address this, creating linkages with key groups such as the Secretariat of the Pacific Community (SPC) and supporting collaborations by Pacific Island countries with two CGIAR centres, the WorldFish Center and the International Plant Genetic Resources Institute (IPGRI).

Achievements

Fiji's sugar industry is being examined to improve efficiencies at the farming and milling levels, through a comprehensive econometric analysis. Key areas for efficiency gains have been **identified and results presented to the Fijian Government**. Development of a model on food choice in Fiji was completed. Information gathered has revealed that changes to diets and shifts in lifestyle patterns from increasing urbanisation are factors in rising obesity levels. This is being factored into a Government education campaign on nutrition principles. A new project in Fiji is examining the role of trade liberalisation and associated policies on agriculture and land use. Of specific interest is the role of liberalisation policies relating to sustainable land use and their impacts.

Activities, capacity and collaboration in plant genetic resources conservation and use continue to grow in the Pacific, helped by an ACIAR-funded International Plant Genetic Resources Institute specialist assigned to the SPC. An **information paper on policy issues has been published** and widely disseminated, along with public awareness materials, and a regional directory of gene-banks has been prepared for publication. Ex situ conservation of breadfruit has begun in Vanuatu—until recently little germplasm had been collected. Gene-banks have also been established in Pohnpei, and genetic resources of local crops are being documented in Kiribati and Marshall Islands.

All virus diseases of taro in the Pacific have been characterised, leading to development of **a diagnostic test for each virus**. This will substantially boost the capability of quarantine services to test for taro diseases, enabling varieties resistant to taro blight or having other desirable agronomic traits, to be transported between countries. The project has supported the AusAID TaroGen project and has resulted in follow-up work to examine other crop diseases. A promising control for taro beetle grubs, using a fungal control agent, has been developed. Trials at the field level now under way in Fiji and PNG will help determine appropriate dosage levels for application in both countries.

The first mini-harvest of cultured pearls from a Ministry of Fisheries and Marine Resources demonstration pearl farm, established as part of an ACIAR-supported project in Kiribati, has been achieved. The poor results from an investigation of wild spat availability in Tonga accelerated efforts to transfer blacklip pearl oyster hatchery technology to Tonga. **Good progress on hatching and growing pearl oyster spat** has been reported. A manual on hatchery and grow-out technologies for blacklip pearl oysters is in production. A new project will draw on the results from successful ACIAR and WorldFish projects, to assist Pacific Island countries to establish or solve problems constraining the development of viable income-generating mariculture industries.

Migratory tuna stocks fished in the Exclusive Economic Zones of Pacific Island countries **produce significant income for these nations**, which

Pacific islands clam cleaning

charge access rights to more distant fishing nations. An economic model is being adapted for use in determining optimal access levels and fees based on sustainable catch levels. The model will also be used to inform regional decision makers on the management of migratory fish stocks by nations of the Pacific. The recent establishment of the Western and Central Pacific Fisheries Commission now provides a conduit to translate information emanating from the project into practical policy initiatives.

Restocking of the sea cucumber 'sandfish' (*Holuthuria scabra*) using hatchery produced juvenile stocks is being assessed to determine suitable transport and release strategies. **Promising methods of release** to ensure acceptable levels of survival after restocking have now been developed. A low-cost hatchery has been established by WorldFish, with sea cucumber larvae being successfully produced, and effective nursery and juvenile grow-out systems developed. Carefully designed pilot release experiments are now underway to further refine release strategies that will optimise survival in the wild. Sites for trochus broodstock replenishment were chosen in Samoa and Vanuatu in consultation with local communities. Surveys of trochus numbers were conducted prior to restocking of one Samoan and all Vanuatu sites.

More sustainable approaches to the collection of reef species valued by the aquarium industry using crest nets, were demonstrated in the Solomon Islands. The research, which is also applicable to PNG, established the need to culture fish following capture, **to increase size and marketability**. Suitable feeds and feeding strategies have also been developed based on locally available foodstuffs.

Tuna fishing

The results of an analysis of **future trends in the fish sector** and their effects on the poor and the environment have been included in a book by the International Food Policy Research Institute. ACIAR supported this work, which revealed developing countries will shape nearly all developments in the fish industry in the next two decades. Policies and new technologies and their role in reducing pressure and improving the sustainable management of wild fisheries, as well as raising productivity in aquaculture, have been described.

Horticulture can significantly contribute to community health and nutrition and boost incomes in market-remote regions. However, development initiatives for horticulture often fail to deliver expected benefits, due to choice of unsuitable enterprises or poor extension and back-up technical support. **A new project in Samoa** will help to design strategies that harmonise with the way people in such regions currently access and use information. Project researchers will identify then involve horticulture industry stakeholders in two remote communities, one in Samoa and the other on Cape York Peninsula, Australia. They will undertake rapid rural appraisals to assess community models for change and then construct an information delivery system for key commodity interests, tailored to the participants' needs.

Forest pest

Forest health surveillance allows early detection of pests and diseases, providing **opportunities for early interventions** to maintain the health of resources that generate valuable income. Fijian, Samoan, Tongan and Vanuatu forest stakeholders have received training in forestry surveillance methods, to help them recognise pest and disease infestations on trees. A forest health form, compatible with the existing Secretariat of the Pacific Community Pest List database, has been developed and is now in use. On-the-ground training in insect taxonomies and specimen collection and handling has been provided during surveys of forests.

A project to improve the utilisation and management of animal waste is targeting Pacific farming systems. An economic model to demonstrate alternative uses and their benefits is in production. The cultural aspects of waste management are also being examined, as these are often a constraint to improvements in the system. The **economic benefits will be incorporated as part of strategies** to overcome these constraints.

Equitable use of groundwater resources in Kiribati is an increasingly divisive issue. Coral atolls and **small islands have limited water resources**, with groundwater being in demand for a number of uses. An integrated approach to encapsulating social and biophysical interactions, based on stakeholder views and inputs, is being developed for Kiribati and will then be trialled in Tonga. This will in part involve simulations of water use and impacts on groundwater levels.

Helping the Solomon Islands

Two new projects are being developed to boost food security and livelihoods in the Solomon Islands. Following the restoration of law and order by the Australian-led Regional Assistance Mission to Solomon Islands, ACIAR began investigating agricultural research needs. Issues with longer-term ramifications that are to be addressed are the role of village poultry in food security and the exploitation of sea cucumber as an income source for poor farmers.

The first project in development will examine the feeds used in village poultry production systems. This will focus on identifying improved feeds to raise the quality of chicken meat and eggs in human diets. Better feeds will also result in more productive chickens, meaning more eggs, more chickens and more potential income. The recent unrest significantly reduced income earning potential, making any sources of potential income important.

Unrest also resulted in high-value resources such as sea cucumber becoming even more attractive. Sea cucumber is relatively easy to fish, and this coupled with their value have seen them subjected to increasing and in many cases excessive fishing pressures. This short-term gain will result in long-term hardship if exploitation continues and these fisheries collapse, an event from which individual stocks may take decades to recover. A community-based management strategy to ensure sustainability and profitability, successfully trialled elsewhere in the Pacific, will be adapted to Solomon Island communities.

Sea cucumbers

Southeast Asia

Financial year	Regional expenditure	Percentage of total bilateral expenditure	Board target as percentage of expenditure
2003–04	$11,103,304	43.5	50-60%
2002–03	$12,713,502	47.8	50-60%
2001–02	$12,901,088	52.8	50-60%

ACIAR's programs cover five regions, of which Southeast Asia is the largest, with nine countries involved. Of these nine Indonesia is, and will remain, our largest partner. For the region, the Board and Minister have set an expenditure target of between 50 and 60 per cent of our overall bilateral research expenditure.

In 2003–04 expenditure was 43.5 per cent. Security problems in Indonesia, together with those in the southern Philippines and the regional impacts of Avian Influenza (Bird flu) and, to a lesser extent, SARS limited travel by ACIAR and Australian research partners for significant periods during the year, delaying both project development and implementation.

	Page
Burma	**28**
Cambodia	**29**
East Timor	**31**
Indonesia	**32**
Laos	**39**
Malaysia	**41**
Philippines	**42**
Thailand	**46**
Vietnam	**48**

ACIAR regional team leader for Southeast Asia: Dr John Skerritt.

Rat burrows in rice crops

Burma

Active projects in 2003–04	2
AOP budgeted expenditure in 2003–04	$536,749
Actual bilateral country expenditure in 2003–04	$356,093
Bilateral country expenditure in 2002–03	$153,903
Bilateral country expenditure in 2001–02	$0

Key performance indicators	Performance 2003–04
• Field experimentation underway in at least three projects.	Field experimentation is underway in two projects; a further two projects were put on hold due to concerns regarding Burma's political situation.
• Surveys of rodent damage to rice crops completed for first season.	A major evaluation of rodent damage in rice at experimental sites has been completed with pest species identified.

Village chickens

Position

ACIAR has begun developing a small program with Burma, the first projects commencing in 2003. Despite limited international development cooperation in agriculture with Burma since 1988, some basic facilities have been established and several trained researchers are present to promote effective cooperation. Initial projects are focusing on spillovers from related ACIAR projects. Burma has already indirectly benefited through the Food and Agriculture Organisation (FAO) from the spillover of other ACIAR projects in the region. Training and capacity-building for researchers are being addressed in project development and implementation.

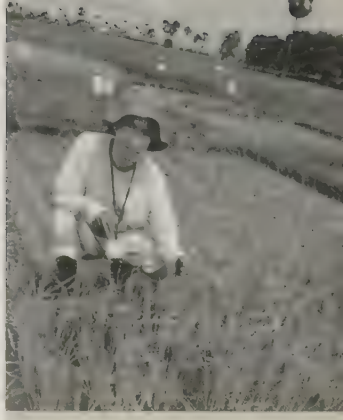
Achievements

Village chickens are major sources of **high quality dietary protein** and provide supplemental income, but the presence of Newcastle disease, and other factors, threatens major losses. ACIAR-supported research focused on identifying the major constraints to village chicken production—revealed as Newcastle disease epidemics and poor chick rearing. An intervention study, using the ACIAR-developed I-2 vaccine, is now being conducted and demonstrating that losses can be decreased. Burma has some capacity to produce the vaccine, but only enough to cover around 30 per cent of total stocks. ACIAR-supported research is expanding this capacity, including through a one week workshop in diagnosing major poultry diseases. Training to bring Burmese partners up to date on poultry diseases and in molecular diagnostic techniques was also undertaken.

The ecologically based management of rodents in rain-fed cropping systems, also in its first year, identified the major pests in Burma. Surveys identified a variety of pests and resulted in **a draft map of rodent distribution**. Population studies, in part to identify breeding cycles (a key component of ecological management) are under way at three sites. The Trap Barrier System (TBS), used in conjunction with a lure crop planted prior to the main crop, was demonstrated and refinements were trialled then implemented to improve the system's effectiveness in local conditions.

Cambodia

Active projects in 2003–04	9
AOP budgeted expenditure in 2003–04	$1,098,618
Actual bilateral country expenditure in 2003–04	$997,832
Bilateral country expenditure in 2002–03	$721,584
Bilateral country expenditure in 2001–02	$489,597



Rice research in Cambodia

Key performance indicators	Performance 2003–04
• Growth in proportion of budget for Cambodia compared with 2002–03.	Expenditure grew from 2.5 per cent to 3.9 per cent.
• Extension activities from ACIAR projects conducted jointly with AusAID's Cambodia–Australia Agricultural Extension Project (CAAEP2).	Two projects developed links and worked to support the CAAEP2 project, including undertaking joint activities at field sites in two provinces.
• Agricultural diversification activities of three ACIAR Cambodia projects coordinated to allow information flow between project teams.	Coordination between three projects aimed at diversifying agricultural activities regularly undertaken. An additional project is now also involved in the communication network.

Position

Cambodia is of growing importance as a partner country, although Australia has provided significant development assistance in recent years. A major component of AusAID assistance in Cambodia continues to be in agriculture, and ACIAR has taken the opportunity to link several of its research projects to AusAID-supported extension, industry development and institutional capacity-building initiatives. Cambodian farming is largely based on rain-fed rice systems of relatively low productivity. Projects target improvement in rice production as well as agricultural diversification, and expansion of the country's animal health research and development capacity. Cambodia has made good recent progress in developing a group of internationally trained researchers and restoring infrastructure, with ACIAR continuing to offer scientific capacity-building opportunities through its projects.

Achievements

Adapting ACIAR-supported research on rodent management in Southeast Asia to the specific needs of Cambodian farming systems **has led to successful interactions** between farmers, researchers and extension workers. Farmers in selected villages are the main research target and many have already adopted the Trap Barrier System to control rats. Significant benefits in increased yields, reduced losses from rodents and reduction in the use of rodenticides have all been recorded. The project has also delivered social and economic benefits, increasing community interactions to manage rodents and improving livelihoods through more rice. Another research site has been selected to further extend these encouraging results.

Ms Chiraporn Sunpakit is our Country Manager for Cambodia, Laos, Thailand and Burma

Rice threshing

Following a successful project to control fasciolosis (a parasitic disease of livestock) a new ACIAR-supported project is updating risk models. Using geographic information systems project scientists are gathering data that together with the earlier knowledge gained from ACIAR research **will form a package that extension officers can use** for the implementation of a national strategy to control fasciolosis. The new project has started to quantify benefits and costs of control of fasciolosis for farmers. Significant benefits are anticipated, based on results of previous research, through improved income flowing from better growth rates and draught and reproductive performance of cattle and buffaloes, as a result of achieving fasciolosis control.

Selecting rice cultivars suited to Cambodian conditions, where drought is common, continues through a process of drought simulation. Standing water is drained from crops to simulate water stress, allowing researchers to identify cultivars that mature early or adapt well to the effects of drought. This knowledge is now being utilised to develop rice varieties based on early maturity. Double cropping systems significantly **boost rice production** but there are some limitations to the practice. These have been identified and new methods such as earlier planting of rotation crops immediately after rice harvesting and the use of supplementary strategic irrigation will help to improve crop management.

Crop diversification, from rice (where Cambodia has reached self-sufficiency) to other higher value crops has the potential to alleviate rural poverty, but is hampered by a lack of knowledge of how to grow non-rice crops, including choice of suitable land for planting. ACIAR is supporting research to help Cambodia establish viable cropping industries beyond rice. Three study sites representing a range of agro-ecological conditions have been chosen, with detailed soil profile descriptions recorded. Also trial crops sown to establish baseline yield data have demonstrated the need to acquire well suited cultivars. This information will be fed into other related projects.

Dumkor vegetable markets

Scientific capacity in Cambodia continues to grow through the AusAID-funded Cambodian Agricultural Research and Development Institute Assistance Project. The country's scientific capacity diminished greatly during the past two decades, limiting the ability of scientists to deliver effective research. ACIAR is managing a component of the project, **the Cambodian Agricultural Research Fund**, which helps provide the basis of a competitive research sector by support of research projects through a competitive funding scheme. Successful applicants receive training to undertake the research problem identification, preparation of proposals and report writing necessary to interact with the international scientific community and donors.

Aquaculture feeding

East Timor

Active projects in 2003–04	2
AOP budgeted expenditure in 2003–04	$483,762
Actual bilateral country expenditure in 2003–04	$285,402
Bilateral country expenditure in 2002–03	$681,219
Bilateral country expenditure in 2001–02	$479,366

President Xanana Gusmao at the Hera Campus of East Timor Agricultural University

Key performance indicators	Performance 2003–04
• Options for broadening of the program assessed.	New projects on weed management and cassava production have been developed.
• Increased yields for introduced varieties of at least three crops demonstrated on farmers' plots as well as project trial sites.	Around 100 farmers have tried many introduced lines of rice, maize, peanut, sweet potato and cassava with higher yields than local varieties.
• Completion of at least 10 student thesis research projects at the new University experimental farm.	More than 20 thesis projects completed at the University farm in 2003–04.

Achievements

As part of the Seeds of Life project researchers have completed a final year of testing of crop varieties suitable for East Timorese conditions. Many introduced varieties of the **staple crops—maize, peanut, cassava, sweet potato, rice and beans**—have been trialled and continue to show much higher yields than locally grown varieties. The focus of the project has shifted to seed production of varieties identified as suitable for East Timor, and limited farmer demonstration of these varieties has been undertaken. A number of agencies have been approached to help disseminate seed stock of chosen varieties. A follow-on project, focusing on further varietal identification and seed dissemination, is now being developed in association with AusAID. East Timor's Ministry of Agriculture, Forestry and Fisheries will coordinate the new project.

Facilities at the Hera Experimental Station of the National University of East Timor's Agriculture Faculty have now been in operation for two years. The facilities, extensively damaged in the unrest after East Timor's independence vote, are vital for research and teaching agricultural science students. In addition course materials for many aspects of agriculture are now complete, designed to promote a problem-solving approach to **learning that is vital to the on-going development of agriculture**. ACIAR has extended the University Rehabilitation Project until December 2005 to ensure the good base created by the project is consolidated, including allowance for a revision of the agriculture curriculum.

Harvesting sweet potato

Position

Agriculture provides a livelihood for more than 80 per cent of East Timorese and is also an important source of export income. Much of the country has similarities of climate and production systems to northern Australia, as well as those in neighbouring eastern Indonesia. ACIAR began working with East Timor in late 2000, linking Australia's comparative agricultural research advantage with East Timorese agricultural organisations. Current projects aim to build local agricultural research capacity, both in the field and in the laboratory.

Restocking experimental net cages

Indonesia

Active projects in 2003–04	49
AOP budgeted expenditure in 2003–04	$3,837,577
Actual bilateral country expenditure in 2003–04	$3,689,481
Bilateral country expenditure in 2002–03	$4,062,457
Bilateral country expenditure in 2001–02	$4,784,157

Key performance indicators	Performance 2003–04
• More than two-thirds of projects initiated in 2003–04 have a significant eastern Indonesia component.	Of 20 projects either commenced or in design in 2003–04, 70 per cent have a significant eastern Indonesia component.
• Plan for wider farmer uptake of technologies developed and assessed from ACIAR's suite of Bali cattle nutrition and reproduction projects developed and initiated.	A suite of three new projects for commencement in 2004–05 is being developed to support expansion of the beef sector in eastern Indonesia.
• Development of a new vaccine for the very virulent Indonesian strain of the serious poultry disease, Gumboro.	A pilot vaccine has been developed for Gumboro Disease of poultry and is in the process of being commercialised.
• Initial farmer trials of integrated pest management strategies for the Liriomyza leaf miner pest of vegetable crops.	Farmer trials comparing local practices with integrated pest management (IPM) showed that insecticide applications offered no advantages over IPM.
• Shared fish stock issues between Indonesia and Australia better understood and a mechanism for formal consultation on related management issues established.	At the March meeting of the Australia-Indonesia Ministerial Forum Working Group on Marine Affairs and Fisheries a Sub-Committee for the Management of Shared Fish Stocks was agreed.

Position

Indonesia is ACIAR's largest bilateral program. The country's proximity and strategic importance to Australia, and the large proportion of its population relying on agriculture, mean that its prominence in ACIAR's program will continue.

ACIAR's program focuses towards eastern Indonesia, with an emphasis on increasing incomes for farmers and fisher folk. This includes projects to improve cropping, animal health and production, forest production systems, fisheries and building a more sustainable base for agriculture and natural resource management.

Most research capacity is in Java but ACIAR has made good progress to link this expertise with eastern Indonesian institutions and to regional adaptive research agencies and planning authorities.

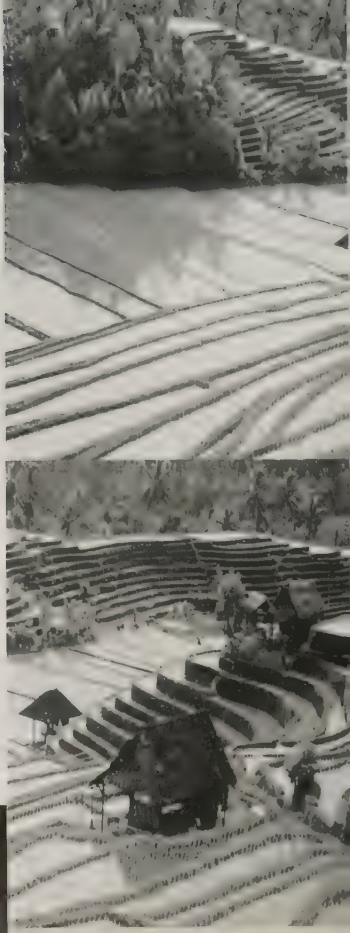
ACIAR also targets Indonesia in its multilateral program, delivered in conjunction with international agricultural research centres such as the Center for International Forestry Research (CIFOR), the International Potato Centre (CIP) and the World Agroforestry Centre (ICRAF).

Ms Mirah Nuryati is our acting Country Manager for Indonesia

Achievements

Contract arrangements between smallholders and agribusiness do not always deliver benefits to farmers. Surveys of smallholders and communities involved in contract farming have **determined the potential flow of benefits**. Data have been gathered and these are now being used to assess benefits, with an equitable split possible between smallholders and agribusiness. These findings will be incorporated into recommendations for the contracting sector. These include the role of guaranteed prices and lowering input costs as incentives.

A recently commenced project is beginning to build a small-scale model of the economy of north Sulawesi, to demonstrate linkages between the broader economy and the coconut industry, as part of **a project to help revive that industry**. A generic model for microfinance for agricultural producers was produced in a project on this issue in West Nusa Tenggara. Pt Bank has accepted this model and developed operational guidelines for its use in interactions with Micro Finance Institutions (MFI). Linking MFI intermediaries to commercial banks can increase savings and credit facilities at the rural community level. This has resulted in the formation of one women's group and a cooperative.

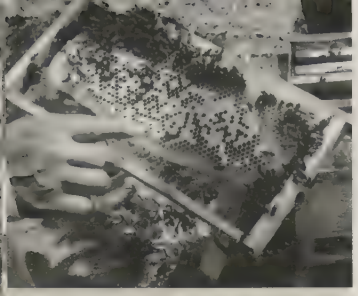


Rice terraces

Contract farming is delivering benefits to smallholders in Indonesia

The value of contract farming to smallholder farmers has been uncertain. ACIAR has funded research into the contract broiler chicken industry in Lombok, as well as other agricultural industries elsewhere in Indonesia, to answer this question. Nusantara Unggasjaya (NUJ) is a company that specialises in producing pigs and poultry, using contracts with farmers to ensure supply of broiler chickens. Smallholders must provide a chicken coop before they can enter into a contract. They receive day-old chicks to rear using the company's specifications. NUJ also provides feed, veterinary products and other resources on credit. Live chickens are delivered to the company at around 38 days of age for on-selling. Farmers receive payments by cheque, which they can convert to cash in over-the-counter transactions.

The study of smallholders contracting to NUJ revealed that these farmers are better off than those not engaging in contracts. Participation results in a significant boost to household income, with the support provided by NUJ critical to ensuring the contract is profitable to the smallholder. Contractors on the whole had smaller, but more diversified farms and utilise longer term investments, such as planting trees for timber or as fruit crops. They also had more non-agricultural assets and better household facilities, including sanitation and running water. The main barrier to entry into contracts is still insufficient income, but contractors typically also contributed more to the local community. For those able to enter into contracts with companies like NUJ the benefits can outweigh the costs.



Honey bees

Decentralisation has placed the onus for **effective management policies for forests** (and other sectors) on regional governments. Widespread deforestation requires sustainable policies. ACIAR-supported research has built up five case studies on the impacts of decentralised management, leading to nationally relevant policy recommendations. Researchers have arranged workshops to further develop stakeholder interactions, including accounting for social aspects of policy impacts, with the results being fed into research outputs.

Controls for the parasitic bee mites *Varroa* and *Tropilaelaps* have been developed using formic acid, and design of hives has changed to increase air flow. Honey is an important **medicinal preventative and 'cure-all'** in Indonesia, but the presence of mites reduces production significantly, meaning Indonesia must import honey.

Sheep in Indonesia

Controls for *Fasciola gigantica* and *Haemonchus contortus*, parasites that significantly reduce livestock productivity, have been identified in Indonesian Thin Tailed sheep. These sheep produce a natural defence against both parasites, which has been traced to a set of major genes. DNA markers for these genes have been developed. Several **proteins that kill *F. gigantica* have also been identified**. Results of an earlier project (with components in Cambodia and the Philippines) on developing a fasciolosis control program to reduce poverty have demonstrated that education of animal owners in control techniques has led to increased incomes. This information is now in preparation for wider dissemination.

Research into Jembrana disease continues, with emphasis on boosting Indonesian capacity to detect and manage the disease, especially at the regional level. Jembrana disease has been a barrier to the wider adoption of Bali cattle. Regional Disease Investigation Centres have received training, including use of the ELISA diagnostic **test developed to detect Jembrana antibodies**. Development of vaccines against the disease is in the initial phase, with recombinant protein-based vaccines demonstrating effective immunity in limited trials. Further trials are planned. A DNA-based vaccine is also in development. A second project focusing on a vaccine for infectious bursal virus disease (Gumboro) in chickens has identified one strain for use in vaccine development. Initial tests on the virulence of this strain using tissue culture have shown promise for vaccine development, with virulence reduced. A vaccine based on this strain is now being assessed in further trials.

Bali cattle

Field tests of changes to improve pig growth, in sweet potato–pig farming systems in Papua (in Indonesia's east) have demonstrated significant benefits. The traditional system takes five years for a pig to reach full maturity, but field trials indicated adoption of changes could **reduce this timeframe to two years**. This is achieved through management practices that reduce the impact of diseases, fermentation technologies to convert low-value feeds into quality feeds and introduction of improved sweet potato varieties.

Preparing for rice crop

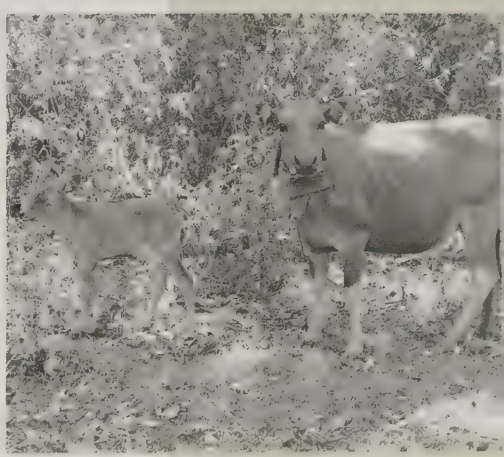
Improving the productivity of Bali cattle through improved management systems presently focuses on implementing research results. An economic model of a new system demonstrated better cash flows and gross margins from adopting changes. A competition to encourage risk-averse farmers to become participants was successful and also helped **identify good bulls for use** in future breeding. An extension package for Indonesian conditions is now being produced.

High quality forages for livestock production in rain-fed farming systems will help smallholders meet the growing demand for cattle products. Using APSIM, which can simulate farming systems under many conditions, existing production modules are being modified to study rice and forage production. Grasses representing those commonly found in farming systems in Sulawesi are also being incorporated. Long-term climatic data are being sourced to help **develop long-term forecasting simulations**. Analysis of cattle growth rates is also being undertaken to develop a full picture of current and future options. This research has added capacity for the newly developed APSIM modules to be used as a base for modelling in other tropical farming systems.

A related project is addressing **ways to optimise crop–livestock systems** in seasonally dry areas. Benchmarking of system performance is under way, including monthly monitoring of animal growth. The data collected have been used in the development of an integrated tool that allows system-wide analysis. Cattle health problems have been resolved using simple cattle management strategies. In West Nusa Tenggara Province the demand for beef has been met mainly through slaughtering of female cattle, reducing an already low reproductive potential. Using the APSIM-derived model developed in the related project, extension workers have gained increased knowledge of how cattle productivity and income can be enhanced without further exacerbating pressure on existing cattle herds.

Another project focused on animal husbandry has identified the impact of cultural and management practices on the fertility and growth of Bali cattle. Comparisons between two sites in eastern Indonesia revealed the management practices at one to be far more effective, providing **a basis for scaling up of extension activities** and emphasising the need to allow for cultural issues when developing these packages.

Through adopting controlled seasonal mating, improvements in feed management and early weaning of calves, conception rates have increased to more than 90 per cent and calf mortality to below 10 per cent. New *Leucaena* varieties to help fatten cattle were also tested, with several promising varieties including Tarramba and the KX2 hybrid showing promise for many parts of Indonesia.



Bali cattle—capable of producing a 95 per cent weaning rate

Potato sorting

The potato leaf miner (*Liriomyza huidobrensis*) and other leaf miners are major pests. Scientists have **determined their distribution in vegetable crops** in Indonesia and information on the various species has been compiled into a database. Natural parasitoid wasps (predators) of the various leaf miner species have also been identified. Management practices for potato blight were killing the predatory wasps. Researchers have modified the practices then conducted trials at field sites that showed lower levels of wasp mortality than in farmers' fields.

Research continues to combat soil-borne fungal diseases, particularly those that cause clove yield decline and vanilla stem and root rot. The factors causing both have been identified and surveys have determined the mode of spread of both fungal pathogens. Insect carriers linked to clove yield decline have been identified and the ability of the vanilla stem and **root rot pathogen to remain dormant in vines** established. This information will be used as the basis of management techniques to limit the spread of both pathogens.

Shrimp ponds

The processes that cause the release of acid from acid sulfate soils (ASS) in aquaculture pond walls and dykes have been described in detail. This knowledge has assisted the development of simple cost-effective remediation techniques and preventative steps using liming in pond preparation. Culture of shrimp in formerly abandoned ponds has seen **shrimp survival rates of 90 per cent achieved**. Production timetables have also been refined to assist farmers better manage risks associated with acidity and toxic metals in soils. Refinements and improvements have also been made to poly- and monoculture systems, including requirements for stocking of species and the **appropriate use of floating net enclosures** to provide culture opportunities. A new project is examining cage culturing of fish in large reservoirs to determine its impact on wild fish populations, which small-scale fishers rely upon for feed and sale. Management strategies are being developed for optimal harvesting of fish from culture and wild stocks, to achieve an acceptable balance between the interests of both groups.

A clearer picture of the socioeconomic importance of artisanal fisheries in eastern Indonesia has emerged from a project that also boosted institutional skills in socioeconomic research related to fisheries

management. An assessment of the sustainability of current levels of fishing elasmobranch (shark and ray) species is in progress for these artisanal fisheries. An analysis of the longline tuna industry catch in the Indian Ocean has **significantly boosted Indonesian capacity** in fishery statistical information collection and analysis, vital to the sustainable management of this and other fisheries in Indonesia. Port sampling programs have also been established at several locations.

Floating barru cages

Grouper aquaculture has been significantly enhanced with the completion of a project that has improved technology for this industry. Production techniques and optimal requirements for **growing grouper from the egg through larval stages** have been developed. These technologies, using a combination of live foods, have boosted survival rates to the point where commercial hatcheries are adopting them. Scientists have determined nutritional requirements to support the methods and developed grow-out diets to fatten and mature fish in floating net cages and ponds.

Grouper grow-out

Capturing carbon sequestration benefits available from planting new forests could be enhanced through changes to institutional conditions. A recently commenced project is examining ways to reduce transaction costs and overcome other institutional barriers by **developing standard approaches** to designing and managing reforestation projects that could result in carbon-credit payments.

Current and past fire use patterns, including the physical, economic and social characteristics of fire use were described for sites in Indonesia, as part of a project on the impacts of fire. Changes in land cover and land use have also been mapped, and are being used to determine connections between land use and fire history. The ongoing development of **coffee planting as an alternative** to traditional slash-and-burn agriculture is reducing soil erosion. The importance of increasing canopy cover of coffee plants in reducing erosion has been clearly demonstrated, with fertiliser applications and management to achieve canopy growth developed. The work also significantly boosted yields from coffee plants in experimental plots, compared to those in farmers' fields.

Mud-crab fattening pens

Trials of selected silvicultural practices to **reduce the incidence of heartrot** in *Acacia mangium* are underway. *A. mangium* when planted in Indonesia is susceptible to heartrot, limiting timber use and paper production. Glasshouse studies of wood properties and possible natural defences are also under way. Provenance (geographic origin) selection is also being assessed to determine if this plays a role in susceptibility. DNA-based diagnostic tools are also being developed. Guidelines for plantation management based on the project's findings will be produced.

Aflatoxins which are a serious health risk to humans and some livestock can occur in peanuts as a result of contamination risks by the fungus *Aspergillus flavus*. Contamination **risks during production are being assessed** in Indonesian conditions using APSIM. A newly developed

Cocoa grafting

simulation module, based on an existing peanut growth module, together with another software tool is revealing aflatoxin risk levels associated with climatic and other causal factors and scenarios in peanut-producing areas across Indonesia.

A collection of Indonesian and international cocoa tree clones has been established in Sulawesi as part of research into improving quality and disease resistance. Grafts of **promising varieties have also been replicated**, and all collections will be examined for improved quality and disease resistance. Researchers have demonstrated farmer management practices, including pruning, to improve the establishment productivity of clonal material grafted onto existing trees.

Chillies growing in vertisol soils

The use of permanent raised beds for cropping in Nusa Tenggara's vertisol soils has demonstrated that growing chillies offers a significant cash bonus (Rp5000 per kilogram against Rp1000 per kilogram for rice) as produce is available a month earlier than from other regions. The use of raised beds also allowed more water for secondary crops (rice is the main crop) to be **collected and used for irrigation**. Finally the use of seasonal climate forecasting for Lombok could substantially enhance planning options for crop choices and irrigation uses. A new project is using climatic modelling and historical data to develop reliable forecasts. These will become part of existing decision-support tools for choosing the most desirable options for crop type, planting times and management practices.

Laos

Active projects in 2003–04	10
AOP budgeted expenditure in 2003–04	$759,205
Actual bilateral country expenditure in 2003–04	$714,519
Bilateral country expenditure in 2002–03	$545,329
Bilateral country expenditure in 2001–02	$613,852

Key performance indicators	Performance 2003–04
• Practical assessment tools and management strategies developed for assessing subsurface salinity.	A conceptual salinity assessment model of tools and measurements through bores developed.
• Identification of most suitable rice varieties for cooler districts of Laos.	Good data obtained on the success of planting particular rice varieties through links to climatic data.
• Development of a new animal health research project linked with major donor initiatives.	A new project on the control of FMD and CSF at the village level has started, with support from the European Union.
• Understanding of rodent taxonomy in upland rice.	A working taxonomy guide has been compiled and a guide on field methods for rodent identification published.

Position

ACIAR has had a small, targeted program in Laos operating since 1992, focusing on multi-country projects with Lao components that address special research needs and capacity-building. Projects are designed to complement major donor programs on crops, animal health, forages and forestry, with an emphasis on major policy and technical interactions.

Achievements

Pasture production on marginal lands is threatened by salinity and waterlogging. Lucerne is a deep-rooted perennial plant that helps arrest soil problems and maintain productivity, and **more than 200 lines of lucerne germplasm** have been sourced for testing in Laos, China and Australia. Training has also been provided for a Lao lucerne breeder, providing exposure to the latest breeding techniques.

The productivity of rice-based cropping systems is being increased by the use of temperature and rainfall maps, combined with trials of different sowing times to determine optimum sowing seasons. This includes for double-cropping of rice in irrigated conditions to avoid low temperature exposure.

Trials of many rice varieties across a range of agro-ecological conditions demonstrated that yields could be substantially boosted by **matching of varieties to conditions**. High-yielding lines were identified. Screening varieties for drought tolerance has determined suitable varieties for further breeding. An improved management system for rice nurseries for irrigated rice in northern Laos was also developed.

Low chill orchard

Hmong mother feeding pigs

Lao fish market

Foraging—carrying the future

Research to further the development of a low-chill temperate fruit industry in Laos, Thailand and Vietnam continues. **Locally derived germplasm with disease resistance** (including resistance to some major leaf diseases) **and good quality characteristics** has been identified for possible incorporation into breeding programs in Laos and Vietnam. Non-astringent persimmons have also been identified as a potential new commercial crop for Laos and the other two countries. Key management practices, including how to control some pests and diseases, have been developed and refined and are now in use. Training to extend this knowledge was also conducted. The need for short-term cash crops while trees mature, to supplement income between seasons, is also being addressed. Based on an external review the project is being extended to refine and extend the production technologies developed and to encourage farmer uptake.

Awareness of the problems of salinity in Laos and northern Thailand continues to be raised through ACIAR-supported research. Monitoring of salinity, through surveys of groundwater levels and water movement, meteorological studies, collection of river discharges and other mechanisms, is producing a clearer picture of the extent of salinity. Maps of saline areas have been produced and **data on tree clearing** and regional geology compiled for the development of hydrogeological models and a salinity database. The maps and database are now helping inform government decision-makers on how to manage salinity.

The ability of the animal health services to manage foot and mouth disease and classical swine fever (CSF), already enhanced by past ACIAR-supported research that **established diagnostic and investigative capabilities for both diseases**, is being further strengthened. A new project is developing improved methodologies to deliver and evaluate village-based vaccination and control of CSF, together with the development of a rapid diagnostic test to support this initiative. Epidemiological information on both diseases is being collected to facilitate control strategies.

A recently commenced project is examining stock structures of two species of Mekong carp, **important for food security in the Mekong** River Basin (where fisheries help feed up to 60 million people across several countries). Managing fish stock is vital as development increases throughout the Basin and encroaches on the river. Laos, Cambodia, Thailand and Vietnam are all involved in the project.

Malaysia

Active projects in 2003–04	4
AOP budgeted expenditure in 2003–04	$36,424
Actual bilateral country expenditure in 2003–04	$35,424
Bilateral country expenditure in 2002–03	$296,572
Bilateral country expenditure in 2001–02	$316,686

ACIAR did not have any Key Performance Indicators for Malaysia in the 2003–04 Annual Operational Plan as no new projects during the financial year were considered. Project results reported below are from previously commissioned, on-going research.

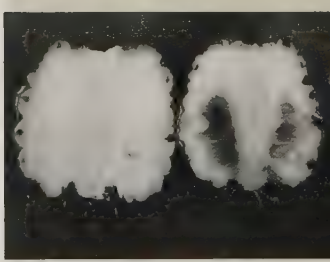
Rambutan

Position

Malaysia is a longstanding partner country for ACIAR, but in recent years ACIAR's program of work with Malaysia has tapered down, reflecting the country's economic progress. Malaysia now has a strong research infrastructure and capability, and the push for privatisation and commercialisation of agriculture is strong. No bilateral project development has been initiated since 1998, with ongoing projects having a strong regional focus and applications in other countries. Malaysian organisations are welcome to participate in ACIAR projects as non-funded collaborators. On occasions, ACIAR supports Malaysian scientists as specialist advisers to assist in projects in the region, and through multilateral projects that deal with subjects of a regional nature.

Achievements

The conservation of tropical fruit germplasm has progressed through a project that has developed micro-propagation systems for **a number of fruits**. Techniques established during the project are now being adopted by other countries in Southeast Asia.



Pineapple with the postharvest defect blackheart

Cool weather cultivation and cold storage of pineapples can result in the postharvest defect blackheart, which reduces quality and sale options. A bioassay of leaf browning, a potential **early indicator of blackheart susceptibility**, has been developed. The bioassay is now being tested, along with testing of resistance to the defect in 36 transgenic lines of pineapple.

Philippines

Active projects in 2003–04	35
AOP budgeted expenditure in 2003–04	$1,980,195
Actual bilateral country expenditure in 2003–04	$1,852,285
Bilateral country expenditure in 2002–03	$2,948,986
Bilateral country expenditure in 2001–02	$2,471,426

Key performance indicators	Performance 2003–04
• New research projects underpinned by design processes that include endusers of the research and address their needs.	Strong end-user involvement in new Landcare, weed management, groundwater management and mango supply chain projects.
• At least 400 farmer groups adopting Landcare principles in Mindanao and the Visayas.	More than 400 Landcare groups, with participation between 25 and 35 per cent of farming households and conservation adoption between 35 and 65 per cent.
• Diagnostic screening tests for tick-borne diseases applied to screening cattle in at least two provinces.	Surveys have been conducted in Luzon and in Mindanao.
• Evidence of community group involvement in watershed management on Bohol Island.	Local catchment stakeholders and community groups are actively engaged with the project.

Position

ACIAR's program in the Philippines, which commenced in 1983, has a broad aim of supporting improvements in agricultural productivity to increase market access for poorer farmers. A shift in project location, to emphasise poorer areas of Mindanao and the Visayas, reflects this broad aim. Increasingly ACIAR underpins new research projects with design processes that include the end users of the research. Project activities that enhance the impact of earlier ACIAR projects are now a particular focus, as is increasing the sustainability of agriculture and development of the natural resource base.

Achievements

Small ruminant production in the tropics is constrained by parasites, including nematode worms. Chemicals (anthelmintics) have been used to control nematode parasites, but there are concerns over levels of anthelmintic resistance. Surveys revealed **low rates of resistant parasites** and highlighted the need to maintain random surveys as a measure of resistance. Collection of genetic data has been undertaken and a database developed. Guidelines for worm control and husbandry techniques are being disseminated in the Philippines and beyond, in part through a CD-ROM and the Internet.

Surra (trypanosomiasis) caused by *Trypanosoma evansi* is endemic throughout livestock in Southeast Asia. Molecular techniques to improve the diagnosis of *T. evansi* have resulted in a sample test kit for diagnosis being distributed in Mindanao. This will significantly enhance the mobility of surveillance. Evaluation of existing drugs against Surra has determined **which suit large animals**. Investigations into the epidemiology in the Philippines revealed that the combination of buffalo and goats is likely to increase infection. Another project is helping equip the Bureau of Animal Industry with expertise in diagnosing and controlling bovine babesiosis and anaplasmosis. Past project work in Zimbabwe developed ELISA diagnostic tests which are being adapted in a more user-friendly form. Training in the use of the kit and in disease control has also been undertaken.

A database is being compiled for breeding and performance records for ruminant species to **identify elite breeds** for incorporation into a customised version of the Breedplan software, which enables selection of elite genetic lines. It is hoped to emulate the success achieved in Thailand,

where the use of Breedplan has led to improvements in the quality of Thai cattle breeds.

The contribution of livestock to the smallholder farming sector is limited, due to poor uptake of research outputs that could boost productivity. The Leyte Livestock Improvement and Innovation Network established under an ACIAR-supported project continues to build smallholder capacity through contacts with local teams of farmers and **linking these, through participatory research, to R&D providers**. Profits of members farming pigs and chickens have increased, and improved environmental management has been achieved. A combined knowledge system—Selection of Forages for the Tropics (SoFT)—for forages suitable for smallholder farming and livestock systems is being developed for several countries. Database specifications have been drawn up and more than 100 forage species reviewed.

Researchers have conducted a survey of smallholder duck and chicken producers to reveal constraints to **improved performance**, with preliminary analysis revealing that marketing systems limit farmer opportunities.

The Landcare program, working in conjunction with a Spanish aid agency on implementing and testing the applicability of the approach in upland farming communities in Mindanao, has had significant impact at its three project sites. More than 400 Landcare groups have been formed with participation by up to 35 per cent of households, **adoption of conservation measures by up to 65 per cent of farmers**, and protection of up to 25 per cent of farmland. The project also had significant impact on both social capital through membership of Landcare groups and farmer knowledge and skills through training provided. Since proving that Landcare is successful in an upland context 45 Local Government Units and Non-Government Agencies and Organisations have now become actively involved, re-shaping institutional approaches to agricultural development. Questions remain on the long-term sustainability of Landcare and how best to extend it beyond the initial pilot sites.

A new project, co-funded by AusAID, has been formulated to address these questions by establishing an independent network of Landcare coordinators and site support personnel at five sites across the southern Philippines. The project will analyse the most appropriate processes for the network to **effectively sustain and grow Landcare** throughout the region. The ultimate aim is to integrate the network into a larger independent and self-sufficient non-government Landcare agency, and to evaluate its performance in sustaining the approach.

Another project is examining the agribusiness supply chain for smallholders in Mindanao. Information to provide a complete picture of the chain has been collected, leading to the development of a farm-household model to determine activities that will optimise profits. Discussions have begun with stakeholders to **foster links of farmers with supermarkets**, including cooperation to meet quality standards.

Landcare project

Cecilia Honrado is our Philippines Manager

Landcare seedlings

Marcelino Patindol, Landcare participant

Researchers are also examining the role of government policy in supporting such linkages.

Extensive land clearing leading to environmental degradation has resulted in the need for reforestation. A project focused on Leyte has developed a demonstration seedling farm for forest species, and the **seedlings are now available** for extension activities. This has resulted in increased interest in re-establishing forest areas. Research capacity has improved, with added assistance from a training manual in socioeconomic research methods. Researchers examining the extension services for agriculture in the Philippines have begun gathering information, initially through meetings with key stakeholders.

Incorporation of genes **resistant to papaya ringspot virus** into papaya breeding lines has led to plants that remain free of disease symptoms in field trials alongside infected plants. Glasshouse trials of backcrossed varieties continue to demonstrate resistance, including some crosses with elite Philippine papaya varieties. A separate project is developing papaya varieties with delayed ripening as a means of extending shelf life and marketability.

Two fisheries projects involving the Philippines and Indonesia began during the year. The first is assessing the genetic diversity of wild stocks of the giant freshwater prawn, to help in preserving wild resources and to provide a sounder scientific basis to improve aquaculture breeds. A second project is helping both countries implement Plans of Action to **manage Illegal, Unreported and Unregulated fishing** (IUU), and to work cooperatively to develop a regional IUU Plan of Action in the shared Sulawesi Sea fishing grounds.

The **use of Australian tree species for wood** and other forest products is being supported through seed collection, allowing trials of relevant species in several countries. Advice on silvicultural practices, provenance

Philippines Landcare: a farmer's perspective

With the success of Landcare in Mindanao, now involving more than 4,200 households, it can be easy to overlook the benefits to individual farmers. Landcare began in Australia in the 1980s as a way for farmer groups to work together to restore degraded land. The experience in the Philippines mirrors this, with ACIAR becoming involved after work by IRRI and ICRAF to help Mindanao's farmers manage erosion on steep farming land by establishing Native Vegetative Strips (NVS) on contours.

The driving force behind this growth is the benefit individual farmers get from involvement, benefits that begin by changing attitudes. Marcelino Patindol, a farmer at Claveria, was, like many farmers in Mindanao, sceptical about Landcare. "I am not a person who is easily convinced without proof. I ploughed one side of my farm with NVS and the other side I left as it was without contours. When I compared the two areas after two years, at harvest I found that NVS improved my production of corn by 20 to 30 per cent." Another benefit Marcelino describes is a greater sense of community, with more people willing to work together. "...there is a spirit of unity, which we call bayanihan. For example, it might take one person a week to plough a field, whereas when other farmers are invited to help it can be done in a day. The groups work together to construct nurseries, meeting places or beautify a sitio (small village)."

selection and seed production was disseminated to relevant project partners. Seed orchards of Australian species in nine countries were surveyed, providing information on yields and the impact of climatic, soil and management factors. In the Philippines **over-exploitation of natural bamboo stands** has seen many lose productivity. Researchers have developed and trialled management practices to improve productivity—including better irrigation, mulching and fertiliser use—with positive results.

Landcare meeting

Offsite impacts of pesticides applied to field crops have been assessed, leading to the development of risk-based approaches to preserving water quality. Potential risks in a range of catchments and land uses have been assessed, and monitoring programs established. A separate project on **pesticide residues in horticultural produce** is developing protocols on how to apply enzyme bioremediation technology to remove the residues from several crops.

Watershed monitoring in Bohol continues, with assessment of soil erosion from cropping land and measurement of its impacts on the watershed and water quality. These impacts and options for water resource uses have been discussed with stakeholders for **incorporation into planning activities** for sustainable agriculture. Distribution and water capture from major storage facilities on the Inabanga River have also commenced.

Crop regeneration

A diagnostic key for sweet potato disorders has been produced on CD and a related field guide for diagnosing common problems developed. By specifying symptoms based on the field guide non-related problems are filtered out. The field guide has been distributed, and after further refinement the CD will follow.

For rice a diagnostic key based on all available information on rice disorders has been packaged in both **a web-based and CD-ROM format**. The key allows users to diagnose specific problems based on observed symptoms. Users systematically filter through a variety of possible causal agents until the problem is identified. Information is available for insect pests, plant diseases, nutrient disorders and other causes of rice crop problems.

A project on biofumigation of soils to eradicate soil-borne pathogens is developing management practices to increase the efficacy of the process. These include the use of green manures in combination with specific treatments. **Best bet strategies for biofumigation** have been developed for pest organisms and are being trialled at the commercial farm level.

Tending crop

Ms Chiraporn Sunpakit is our Country Manager for Cambodia, Laos, Thailand and Burma

Thailand

Active projects in 2003–04	23
AOP budgeted expenditure in 2003–04	$1,125,711
Actual bilateral country expenditure in 2003–04	$1,102,630
Bilateral country expenditure in 2002–03	$1,090,643
Bilateral country expenditure in 2001–02	$1,148,593

Key performance indicators	Performance 2003–04
• All new projects under development are focusing on implementation of results of earlier ACIAR projects.	All pipeline bilateral projects emphasise implementation of earlier projects. A pipeline multilateral project is regional, with some research applicable in Thailand.
• Farmer groups in two provinces establishing fish farming based on manufacture of low-cost feeds using local ingredients.	An external review of an ACIAR–World Vision project visited four low-cost-feed producing centres supporting over 550 families.
• Establishment of the OIE Regional foot-and-mouth disease (FMD) laboratory using diagnostic tests developed by ACIAR projects.	The Regional FMD laboratory in Thailand has passed all biosecurity checks and is now receiving diagnostic specimens from other countries and using ACIAR-developed diagnostic tests.

Position

Thailand's research capacity has increased with the country's economic development over the past two decades. As a result its need for ACIAR projects has diminished. ACIAR's investment in projects has decreased in line with the increasing ability of Thai partners to co-invest in projects of strong mutual importance. In some cases, there are spillovers to less developed countries, particularly neighbouring Mekong countries, from drawing on the development experiences of Thailand. Project investment with Thailand is highly selective, focusing only on implementation of the results of earlier ACIAR projects, with emphasis on delivering these benefits to poor farmers and rural areas.

Achievements

Thailand's **accession to the World Trade Organisation** has demanded new sanitary and phytosanitary measures for its produce. A project under way in Thailand and India is examining existing mechanisms to manage risks. Trends in food exports have been mapped and case studies of organisations in selected food industries undertaken. More than 40 organisations in both countries have been involved to date. The results will be fed back to governments in each country to help shape policy recommendations for improvements to current procedures.

Increased agricultural productivity has resulted in a loss of vegetation cover, necessitating improved water resource management. Integrated Water Resources Assessment and Management **models have been devised and tested** across a range of catchments. Hydrology, erosion, crop and economic models have also been developed, with Thai capacity in this area growing substantially.

Careful management is needed for the water catchments downstream from former forest areas that have been settled and are now being farmed. Current land-use trends and changes in selected catchments have been characterised, and impacts on water yields and soil properties determined. A database on the impacts on salinity of water use by trees is being compiled for Thailand and Australia. Socioeconomic and cultural surveys have been undertaken **for incorporation into a salinity model**. A risk assessment map of soil acidification has also been developed to predict pH levels for future years, based on accumulated knowledge. Sixteen farmer networks are now using deep-rooted species to rehabilitate degraded soils.

A project that has introduced the Breedplan software, to identify superior genetic traits in cattle, has established a database of pedigree and performance information for the past 20 years. Desired genetic characteristics can now be evaluated and estimated breeding **values calculated for economically important traits**. As a result, the Government of Thailand is using Breedplan to determine a national breeding strategy for native Thai, Brahman and crossbred cattle. This is a major payoff for the Livestock Department, which has been able to revolutionise the direction and operation of the major breeding stations in Thailand, replacing much of the traditional breeding practices of the Thai government and now the private sector. The involvement of village breeding programs has spread the benefits of the project across all types and sizes of cattle-raising enterprises. Thailand now considers itself as the leader in Breedplan and its use in Asian cattle herds.

Breedplan producing results

The Thai component of the low-chill fruit project has concentrated on training and extension. Training courses have been conducted in pest management, with work also assessing the value of **small-mesh netting to protect fruit**. This has demonstrated that pesticide-free, high-quality fruit can be produced under netting. Links to supply chains and entry to retail markets are helping smallholders begin to see profits from selling peaches at $A4.00 per kilogram in local markets.

Benefit from low chill orchard

Through collaboration **with World Vision in Thailand** the results of a variety of ACIAR projects are being disseminated to smallholder farmers. Changes to horticulture practices have reduced chemical inputs, replacing these with organic alternatives. This is creating a niche market for growers who market their pesticide-free produce in local supermarkets in the Songkla Basin. Environmental impacts from run-off have also been reduced. Another initiative is helping increase smallholder fish production, to tap into local demand for freshwater fish. A third component is extending the low-chill fruit project to other groups of farmers in the northern Thai uplands. This is focusing on cash crops such as vegetables intercropped with fruit trees.

Transferring technology from a project on shrimp viruses has been undertaken, with farmers being shown positive and negative results from various technologies to **encourage them to adopt the improved methods**. High-quality shrimp production clusters are being linked to government and industry programs that emphasise quality. A cheap ELISA test for gill-associated virus has also been developed and is being field tested. As a result of this work the smallholder shrimp industry in Thailand is well placed to capitalise on market opportunities previously constrained by disease outbreaks.

Green ant predation is proving valuable as **a key element of integrated control** of mango insect pests. One type of green ant, the weaver, has proven to be the best species to use, with measures to control its aggressiveness (a major problem in harvesting) now developed and in practice. Integrated pest management (IPM) models have also been established for Thailand and Vietnam.

Paddy field at Tam Dao

Vietnam

Active projects in 2003–04	38
AOP budgeted expenditure in 2003–04	$2,685,982
Actual bilateral country expenditure in 2003–04	$2,069,638
Bilateral country expenditure in 2002–03	$2,212,809
Bilateral country expenditure in 2001–02	$2,597,411

Key performance indicators	Performance 2003–04
• Training in research management and evaluation provided in 2003 has been applied in at least four projects.	Strong Vietnamese input has been provided into two project reviews and the development of five new projects.
• Collaborative research addressing agricultural markets and information systems commenced.	A project comparing markets and information systems commenced with a focus on institutionalising tools for use in market information systems.
• Adoption of improved phosphine fumigation practices by grain handling authorities.	Discussions about improved practice held with grain handling authorities, and agency and fumigation company personnel trained.
• Protein baits for fruit fly control produced by industry and distributed to farmers.	A new production plant for baits opened in April 2004, with baits now available to farmers.
• Evidence of improved profitability of farmer-managed stocked reservoirs through adoption of project-derived husbandry strategies in two provinces.	Productivity improvements achieved in on-farm trials in Yen Bai and Thai Nguyen provinces. Marketing is to be addressed as fish harvests increase.

Position

ACIAR's Vietnam program focuses on forestry, land and water resources, animal sciences, crop sciences, fisheries and postharvest technology. There is an emphasis on delivering practical farmer and policy impacts, particularly in poorer regional areas. A number of recent projects focus on extension or adaptation of outputs from earlier ACIAR projects in Vietnam and elsewhere in the region. Appropriate technologies arising from these projects are also being applied and capacity developed in R&D through the AusAID Collaboration for Agriculture and Rural Development (CARD) program. ACIAR is also seeking greater involvement of the private sector and NGOs in projects, linkages with other donors and development of closer linkages between Vietnamese research and extension organisations.

Misha Coleman is our Country Manager for Vietnam

Achievements

A model to assess the economic viability of different cultured fish systems in Vietnamese reservoirs is in development. The model combines economic and biological inputs, including growth of selected species. Surveys are also under way to assess current markets and **market arrangements for cultured fish produced in reservoirs** and to identify constraints to smallholder participation, with reservoir fisheries being a potentially valuable income source. A second project is examining stock densities through practical trials using species in demand in local markets.

Digitised catchment data are being used to determine the relationships between land-use patterns and fish productivity.

Agricultural markets are being studied to **describe supply chains** for stone fruit marketing in northern provinces. The study has revealed that increases in production are not based on market signals and opportunities, highlighting the need for more market information when producers are making choices relating to crops and produce levels.

Improvements in the varieties of sweet potato used in traditional pig–sweet potato farming systems are boosting production. Many **traditional varieties offered limited nutritional value** to pigs, restricting their growth and potential marketability. Sweet potato varieties with higher starch and protein yields that increase growth rates of pigs have been identified and are now being distributed through farmer networks.

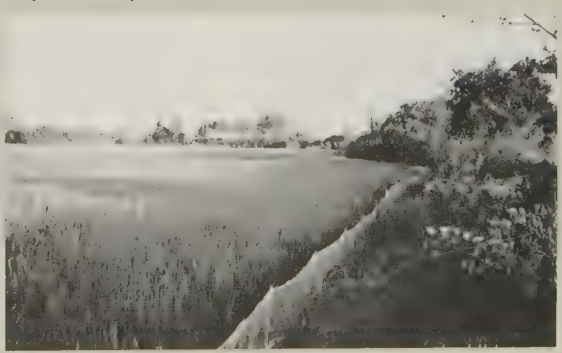
The destruction caused by rats in rice crops is also being successfully controlled, with integrated rat management being introduced in Binh Thuan province, through the ACIAR–World Vision collaborative project. By **encouraging village-level participation and using appropriate technologies**, including the Trap Barrier System with a lure crop, significant reductions in rat numbers have been achieved. This success has also seen the Vietnamese Government implement a policy to support widespread adoption, and provincial governments are budgeting for its introduction.

ACIAR and World Vision—helping to improve rodent management

Rats are a major source of pre-harvest rice losses. Young rats particularly feed on maturing grain for nutrition, their breeding cycle coinciding with the planting and growth of rice crops. As Vietnam has intensified rice production, moving from two to three crops a year, the platform for rat populations to rapidly expand has been laid. Australian scientists from CSIRO, supported by ACIAR funding, developed an Integrated Rat Management (IRM) approach to interrupt the population cycle of rats. A lure crop planted before the main rice crop is surrounded by a Trap Barrier System. This attracts rats to the maturing crop, trapping them before they begin breeding, breaking the population cycle. The IRM system also encourages farmers to synchronise cropping and adopt other practices that work best when implemented by a whole community.

World Vision, as part of a collaborative program with ACIAR to extend the results of this and other projects, has been helping to extend IRM in Bac Binh. For Liem, a farmer from Phan Ri Thanh commune, the benefit of the TBS method goes beyond the obvious economic benefits that are community-wide recognised. "Myself and my wife no longer argue over cost and the use of poisons because of this [TBS method]." Ngoc, another farmer also sees benefits. "We have seen working among farmers can make the best out of this [technique]. Our cooperative will adopt it [TBS method] next season and we believe rat will be no longer a pest."

The success of this, and other demonstration sites, has resulted in the Vietnamese Government using IRM as the basis of both national and provincial policies. The national policy directs farmers to practice IRM, with support at the provincial level, including budgetary allocations, to extend adoption of IRM and use of the Trap Barrier System.



Rat trap barrier

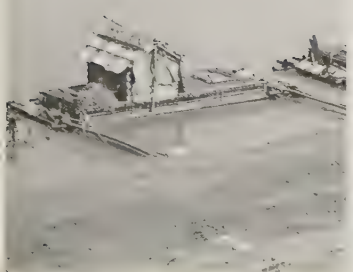
Houseboat on Vietnam's Red River

Soybean is grown between rice crops, usually in a compressed growing season that sees beans harvested before full maturity. Introducing varieties with accelerated growth characteristics to advance **maturity has doubled yields** from 1 tonne up to 2 tonnes per hectare. Better matching of these varieties to local growing conditions and introduction of drought tolerance has further increased yields. Management practices to increase yields, such as through saturated soil cultures, have been refined and introduced.

Protein bait against fruit fly

The low-chill fruit project, operating in Laos and Thailand as well as Vietnam, has identified rootstocks with disease resistance and improved quality characteristics, making them better adapted to Vietnamese conditions. Bait programs to help control the serious pest, fruit fly, have also been introduced. Fosters Brewery at Tien Giang, with support from BASF (formerly Aventis), AusAID and the ATSE Crawford Fund, opened a plant in April 2004 to **manufacture a protein bait against fruit fly**. The bait, based on ACIAR research, and comprising brewery waste mixed with tiny amounts of insecticide, is applied to trees to attract then kill the flies. Farmers involved in trials have recorded significant reductions in lost produce, with more than 1,600 farmers in 16 provinces now involved. Additionally, the spot spraying technology has facilitated a 250 to 500-fold decrease in the amount of insecticide required, which will have immense positive public health impacts.

Fungi that have the potential to act as **bioherbicides against weeds** have shown promise in a range of tests over several years. A bioherbicide for barnyard grass (*Echinochloa crusgalli*) was successful in shadehouse trials but was not successful in replicated field experiments in the Red River Delta. This may have been due to water management limitations or insufficient virulence. A second fungus for the weed red spangle top (*Lepochloa chinensis*) in southern Vietnam has been proven under field conditions, with no problems from its use alongside herbicides against other weeds. Simple methods for mass production of this fungus have been developed and a product suitable for farmer application is likely.



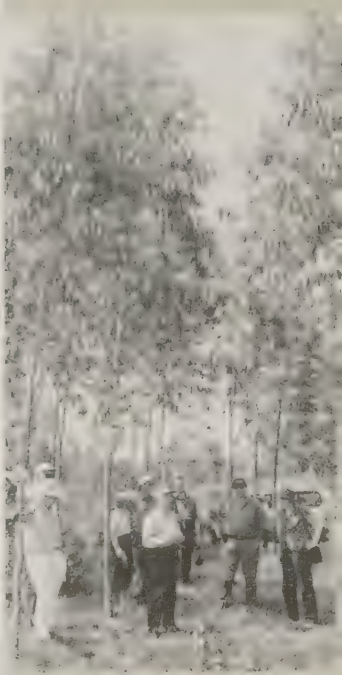
Grass carp cages on the Red River

Vietnamese scientists are receiving project training in disease management for fruit and vegetable crops. Regional networks of scientists have been established and more than **100 scientists trained in pathogen identification** techniques. A manual on laboratory techniques has also been published. Huanglongbing disease (citrus greening) has reduced citrus productivity in several Asian countries. Management strategies have tended to ignore past research, resulting in the need to develop a sound scientific approach. A project is examining both the

disease pathogen and the insect that transmits it, beginning with information-gathering in Vietnam and Indonesia that includes discussions with stakeholders to design experimental protocols.

Transporting feed for grass carp

Reforestation is being promoted in many areas of Vietnam, with some smallholders opting for mixed-species timber plantations. The combination of species used is often determined by availability alone. Surveys of smallholders and saw mills were undertaken to determine which species are considered high value compared to actual market rates. More than 60 species have also been surveyed at 29 plantation sites, as a basis for trials designed to determine how monoculture and mixed-species plantations compare in growth and quality. Seedlot trials of the tree species *Toona*, *Chukrasia* and *Khaya*, held across several countries including Vietnam, have identified **some resistance to attack by *Hypsipyla robusta***, a damaging forest pest. Silvicultural practices have also been shown to play a part in protection. Leaves in full sun are more attractive to pests than those from trees grown in shade, producing a chemical difference that may account for this preference. A related project has demonstrated that *Chukrasia* may have a role as a domesticated tree in agroforestry settings, because it is less susceptible than other species to attack by *Hypsipyla* and has the ability to recover from damage by forming a vigorous new terminal shoot.



ACIAR Board of Management visiting an Acacia hybrid site

A tissue culture protocol for the mangrove species *Avicennia marina* has been developed and is in refinement. Several barriers to this technique such as bacterial infections have been overcome. Tissue culturing of shoots of *A. marina* grown in glasshouses has been successful in producing lateral growth, **a further step towards propagation of seeds and trees**. Genotyping data are being processed in preparation for software analysis of genotypes.

Metal contamination of cropping lands in peri-urban areas is a constant risk, with health implications and the **potential loss of market access** or exclusion as Vietnam enters bilateral and multilateral trade agreements. A project investigating such contamination has established baseline data for toxic levels of metals, with eight field sites in operation and testing under way for metals in cropping inputs and outputs. Criteria for suitable waste materials to use as inputs are being determined for Thai and Vietnamese conditions.

Project site for assessing impact of heavy metals on fertilisation and waste recycling in Vietnam

In another project the APSIM Manure and SoilP (phosphorus) modules have been modified to incorporate information allowing **the management of soil fertility** for low-input systems in the tropics. The SoilN (nitrogen) module has also been modified to specify added organic matter and its interactions. A project on the management of water

Dried fish at markets

distribution in publicly managed irrigation schemes revealed that improvements can be made to distribute water to farms more efficiently, but farmers must also make changes to the ways they use this water or these efficiencies will be lost.

ELISA tests for the presence of mycotoxins and pesticides in stored grain and other food products have been developed, and are now being implemented in Vietnam. Mycotoxins and pesticides contaminate food and grain during crop growth and during postharvest storage. Vietnamese scientists have received training in developing and using the ELISA protocols and tests in the laboratory and field. **A national monitoring network has been established and programs are being implemented**. A second project to integrate phosphine fumigation practices for grain storages has completed a national survey of phosphine-resistant pests. These pests are now being characterised. Pest management systems for farmers who store grain have been developed, with trials demonstrating a gross income saving of 8 per cent, achieved without using chemicals.

Innovative approaches to the **control of root, trunk and fruit diseases** caused by *Phytophthora* have been developed for the durian industries in Vietnam and Thailand. These include trunk injection of phosphonate and the use of non-chemical treatments such as manures and mulches. More than 1000 farmers in Vietnam and 2000 in Thailand have been provided with information on these findings and their implementation.

Transport on the Red River

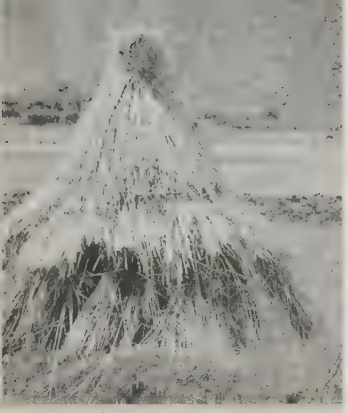
North Asia

Financial year	Regional expenditure	Percentage of total bilateral expenditure	Board target as percentage of expenditure
2003–04	$4,616,136	18.1	10-20%
2002–03	$4,158,518	15.7	10-20%
2001–02	$3,838,370	15.7	10-20%

Expenditure for North Asia has remained within the range defined by the Board. A small program has been under way in the Democratic People's Republic of Korea (DPRK) for two years, with an emphasis on developing long-term food security through more sustainable agriculture. The focus of activities in China has shifted to the less-developed western regions of that country.

	Page
China	**54**
Democratic People's Republic of Korea	**59**

ACIAR regional team leader for North Asia: Mr Michael Brown.



Winter wheat storage

China

Active projects in 2003–04	35
AOP budgeted expenditure in 2003–04	$3,616,448
Actual bilateral country expenditure in 2003–04	$4,231,678
Bilateral country expenditure in 2002–03	$3,951,287
Bilateral country expenditure in 2001–02	$3,723,944

Key performance indicators	Performance 2003–04
• Increased co-investment by Chinese Government in ACIAR projects.	Major co-investment in grain drying facilities, extension of forage management in red soil areas, wheat improvement, wool quality, sugarcane breeding, tropical legume production.
• Initiation of two projects in Tibet Autonomous Region.	Two projects commenced, one initiated and in development and a research contract initiated.
• Agricultural sustainability a theme of at least two-thirds of projects.	Seventy-five per cent of projects started in 2003–04 address agricultural sustainability issues.
• Evidence of cross-disciplinary approaches to projects on improved water resource management.	One policy and two biophysical projects developed emphasising water resource allocation and management in the Yellow River Basin.
• Identification of a suitable summer crop for use in cereal-based rotations in Gansu province.	Field peas and soybeans identified for areas of Gansu as a viable option in wheat-based rotations with similar wheat yield levels.
• Evidence of significant uptake of conservation tillage in China based on initial ACIAR project work.	Sixty conservation cropping demonstration areas now cover more than 100,000 ha in 13 northwest provinces.

Position

The focus of ACIAR's program is shifting towards western China in line with the poverty-reduction emphasis of the Australian aid program and China's own priorities. ACIAR has begun to implement projects in Tibet Autonomous Region and continues to target the needier northwest and southwest regions. There is also an increasing emphasis on sustainability aspects of agricultural production. In view of the significant human and financial resources available within the Chinese national agricultural research system, and the strong mutual benefits to Australia, ACIAR projects in China usually have significant sharing of costs between Chinese and Australian research providers. Collaborative research on aspects of agricultural development policy continues, as does work on water, soil and forest resource management.

Chris Brittenden manages our North Asia Program

Achievements

Two new projects have begun in Tibet Autonomous Region (TAR). The first is examining current rodent control techniques, to deliver management practices that target certain species only. This will reduce the incidence of non-target species being affected and create more **sustainable management approaches**. The second project aims to intensify production of grain and fodder in farming systems in central TAR, through better matching of varieties to local conditions and the introduction of improved agronomic practices.

The **implications on food security of China's accession to the WTO** are being assessed through development of a general equilibrium model. More than 40 industry sectors, including five from agriculture, are incorporated. This has revealed that income disparities between regions are likely to be exacerbated as a result of accession. Food security overall is unlikely to be affected, but some regional households may suffer. Policy options to distribute benefits more evenly and ensure household food security are now being examined. A related project is examining policy options for public investment in western China. Such investment is already known to be an important element in reducing poverty.

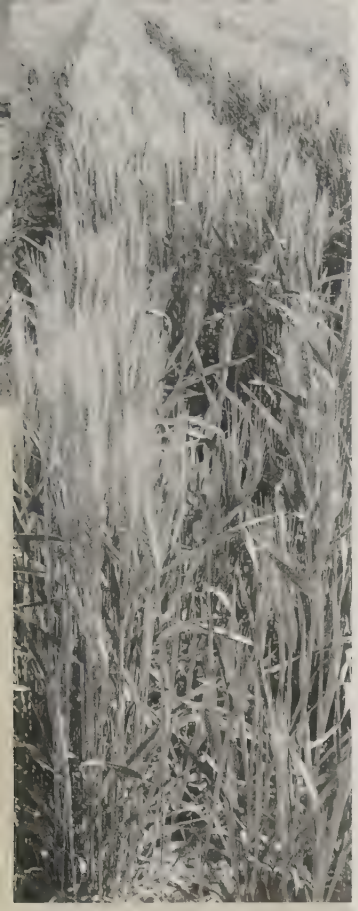
Two projects are supporting research into policies relating to water. The first supports **management of water allocations in the Yellow River** Basin, using simulations to evaluate current and potential allocations. The second project is analysing the Chinese Government's Grain for Green Program (converting cropland to forests and agroforestry) to support related policy initiatives.

Beef production from pastures in the 'red soils' region of China depends on finding grass and forages suitable for cattle and is also helpful in erosion control. Options have been **developed for year-round feeds**, utilising cut-and-carry forages in combination with other on-farm resources, such as rice straw and rice bran, and off-farm resources like molasses and cottonseed meal. Agronomy trials have identified the optimum harvesting schedules and fertiliser rates to produce high-quality feed in summer and winter, matched by feeding trials with cattle to determine the best combination of feeds throughout the year. A model to formulate rations, based on available feeds and estimated growth rates, has been developed. Several hundred extension workers, and several thousand farmers, have been provided with training in forage production and cattle feeding. On-farm testing of forage and cattle production has begun. A computer-based model has been developed to demonstrate the impact of interventions such as **increasing the area of forages** on farm income, labour requirements, cash flow and profitability.

Trials of a management model for working woollen mills have begun, following translation of the model into Chinese. This has been well received, and refinements based on feedback from mill workers are now being incorporated. A fuller picture of garment-making and fabric-trading in China has been drawn, including supply chains. This is being used in interactions with local officials to recommend improvements to the system. Methods to **recover potential pollutants** have been furthered in a project to reduce the impact of wool-scouring effluent in China and India. This has been based in part on new technology, with costs offset by increased profitability, both from the implementation of technology and modifications to existing practices. Less water is now used and the chemical sludge from scours is now recognised as an effective manuring compound when mixed with green material.

Experimental eucalypt plantation

Forage trials



Spring wheat

Genotype by environment (GxE) studies conducted over three years and associated sterility studies have been completed as part of research to improve wheat in Sichuan Province. The results will provide a useful guide to the design of breeding strategies to **ensure good performance for local conditions**. Quality wheat populations have been selected and are being tested for taste. The problem of wheat sprouting while in the field has been addressed; sprouting resistance mechanisms have been clarified and scientists have identified germplasm resistant to this and other defects such as black tip. A workshop on GxE studies was held to train Chinese wheat breeders in analysis of these trials.

Support for China's grains storage is being provided through establishment and verification of a **national standard for modern grain storages**. Field trials, to extend this to older storage facilities and to grains stored under plastic sheeting, are now under way. Training of provincial grain authorities in the new standards and in improved fumigation practices has also taken place. A carbon dioxide application methodology to control pests in storage has been optimised, with levels for a range of pests defined. Temperature and humidity levels and their roles in increasing the toxicity to pests of phosphine, the main fumigant used, have also been characterised.

The oilseeds rapeseed and canola produce oils used in food preparation and products. The local Chinese and Indian rapeseed varieties do not produce oil of the same quality as canola (grown in Australia). A germplasm exchange program involving all three countries has just commenced to **help raise the quality** of Chinese and Indian varieties while also boosting the disease and pest resistance of canola. A separate project is also exchanging germplasm of the food legumes faba bean and field pea, to accelerate the incorporation of disease resistance into breeding programs. Exchange of sugarcane germplasm is enabling assessment of new sources of genetic diversity for incorporation into breeding programs for commercial lines.

Brassica vegetables are important as a source of food, accounting for almost half of total vegetable production and consumption. Pests are a major source of production losses, but **can be controlled through integrated pest management** (IPM) practices, developed during past research. An interactive information package using a range of media applications is compiling this research into 'best practice' examples for brassica integrated crop management. Research to tackle the ongoing management of crop production cycles is also under way.

Quarantine decision-support materials and training aids have been developed to support Chinese quarantine officers involved in domestic and international quarantine. A CD-ROM and website in Mandarin has been developed to provide information on laws and **regulations for plant quarantine**, basic knowledge on quarantine pests, viruses and diseases, and treatment methods for these pests. Interactive diagnostic keys for pest identification of 31 orders of insects are also available, as well as species fact sheets.

Postharvest disease losses are limiting the potential of the melon industry in western China. Trials have shown that appropriate preharvest treatment applications can control postharvest disease outbreaks. Additional postharvest treatment with fungicides has further helped to control postharvest spoilage. Testing of transported melons treated postharvest with fungicide dips **revealed the efficacy of this treatment** in preserving melon quality, compared to non-treatment that resulted in 80 per cent losses.

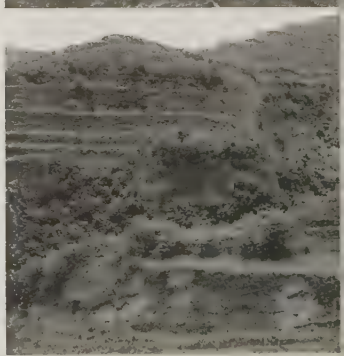
Eucalypts are a valuable source of timber, but growth stresses reduce the value and potential use of their wood. Tests on methods to displace growth strains have established some management techniques and also ruled out the efficacy of others. Cold-tolerant eucalypts help ensure the **continued expansion of plantations** into cooler areas of China. Base populations of two eucalypt species have been established to support improvement programs. Nursery propagation programs based on these species have begun, and plantation areas for cold-tolerant eucalypts are beginning to expand in Hunan, Fujian and Guangxi. A Seed Orchard Management Manual, based in part on project findings, has been produced.

The implications of planting *Pinus radiata* plantations to help **rehabilitate areas of the Yangtze River catchment** are being determined. Climatic variables are being assessed to help identify improved germplasm. Provenance trials based on this information will then be established.

Salinity is a serious risk to agricultural productivity and water quality in the irrigated areas of the Songnen and Yinchuan Plains. A **GIS database** of hydrological and hydrogeological information has been established for these areas and the Ord River Irrigation Area of Australia. Conceptual models of aquifers, surface and groundwater interactions have been developed and are helping to improve water management and reduce salinity buildup. In Hubei, the Zhange Irrigation Scheme delivers water to farmers who are then charged by volume ordered. New arrangements for water delivery and the way farmers order their water are being developed and recommended to the irrigation system operators.

Erosion on western China's Loess Plateau region is an ongoing problem. The introduction of conservation tillage to the region has shown that maize, soy and wheat yields can be improved using the new method. Beneficial effects are also shown for soil and soil water, **with erosion also being reduced**. Integration of lucerne has proven the viability of crops that generate income through fodder production and reduce nitrogen fertiliser inputs in conservation tillage systems. A newly commenced project is examining the effects of revegetation on the Loess Plateau. A wide range of data, including climatic and GIS information, has already been gathered and is being incorporated into a framework to analyse hydrological interactions.

Pea germination



Above: River bank erosion on the Loess Plateau and below—regeneration of vegetation

A youth ambassador helping project scientists in China

Creating stronger collaborative ties between project partners is achieved in many ways, from visits by Australian scientists to on-the-ground assistance. Australian Youth Ambassadors for Development, funded by AusAID, spend between three and twelve months working in a developing country. ACIAR provides assignments for some of these Ambassadors, providing a valuable in-country presence that strengthens collaborative ties. Kim-Yen Phan-Thien is working in China as an Australian Youth Ambassador assigned to ACIAR's project on improving postharvest handling and disease control of melons.

For many smallholder farmers melons are a potential source of valuable income, but significant postharvest losses are reducing this. Kim's role in the project focuses on designing, implementing and analysing experiments to characterise natural disease resistance in melons. "Limited finances and access to resources in the poorer western regions have a much larger influence on experimental practice than most Australian researchers would imagine. These differences can be difficult to bridge via long-distance communication, and the facilitation of better understanding between Chinese and Australian counterparts is where my role as an AYAD has been most valuable." Her experiences in China, beginning in Lanzhou, Gansu Province in central China, then moving to Urumqi in Xinjiang in the far west, reflect the geographic shift in ACIAR's program, with an increasing number of projects supporting agriculture in the poorer regions of western China.

Inspecting melons

Democratic People's Republic of Korea

Active projects in 2003–04	2
AOP budgeted expenditure in 2003–04	$382,458
Actual bilateral country expenditure in 2003–04	$382,458
Bilateral country expenditure in 2002–03	$207,232
Bilateral country expenditure in 2001–02	$114,426

Key performance indicators	Performance 2003–04
• Assessment of legume autumn rotation crops completed for second season.	The second season has confirmed the viability of an autumn-sown legume that generates subsequent cereal yields similar to those from fallowing and use of nitrogen fertiliser.
• English skills developed to enable admission of two scientists for postgraduate training in Australia.	Trainees selected but permission to travel deferred by DPRK Government for 12 months.

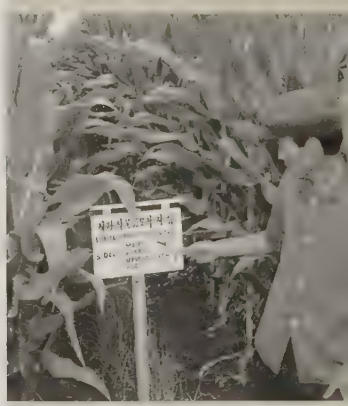
Position

ACIAR's small collaborative research program addresses the Democratic People's Republic of Korea's pressing problems of food insecurity, which has been severe since the mid-1990s. Staple crops are low in productivity, in major part due to low soil fertility. Most agriculture is conducted in isolation from recent advances in technology. ACIAR began in 2001 by training DPRK scientists in Australia, to ensure that their isolation from developments elsewhere in the world was no longer a barrier to research. Current projects focus on lifting productivity of agriculture as a means of improving food security.

Achievements

The introduction of some vetch (legume) species into rice–maize cropping systems has been proven to help restore depleted soil nitrogen. Planting hairy vetch has resulted in **yield increases of up to 0.8 tonnes** per hectare for rice and maize planted as following crops to vetch. The added benefit is a reduced need for scarce fertiliser. Twenty-five other legume genotypes have demonstrated that they can survive in local conditions, particularly the harsh winters. Conservation tillage sowing of maize has reduced soil erosion, a major problem, by up to 75 per cent.

ACIAR's second project in DPRK began during the year, to improve pest management in brassica crops and introduce the concept of integrated pest management (IPM). Natural **enemies of brassica crop pests are being identified** and their impact assessed to evaluate their potential as biological control agents for use in IPM strategies.



Maize project

DPRK farm

Kuhu Chatterjee is our Country Manager for South Asia

ACIAR regional team leader for South Asia: Dr Tony Fischer.

South Asia

Financial year	Regional expenditure	Percentage of total bilateral expenditure	Board target as percentage of expenditure
2003–04	$4,018,897	15.7	10-20%
2002–03	$3,593,919	13.5	10-20%
2001–02	$3,004,923	12.3	10-20%

ACIAR's South Asia program expenditure has remained within the Board's defined target levels, standing at 15.7 per cent in 2003–04. India remains the main focus, with small programs in other countries being developed around projects that target major constraints to production in areas where Australia has a research advantage.

	Page
India	**61**
Pakistan	**65**
Bangladesh	**66**
Other South Asian countries	**67**
Afghanistan	67
Bhutan	68
Nepal	69
Sri Lanka	70

India

Active projects in 2003–04	24
AOP budgeted expenditure in 2003–04	$2,522,606
Actual bilateral country expenditure in 2003–04	$2,482,097
Bilateral country expenditure in 2002–03	$2,398,203
Bilateral country expenditure in 2001–02	$2,080,586

Key performance indicators	Performance 2003–04
• At least three-quarters of new projects emphasise northern or central India.	Eight of 11 projects commenced or under design during 2003–04 focus on northern or central India.
• Completion of independent analysis on effects of adoption of reduced tillage practices on poverty in Haryana and Punjab.	Analysis of impacts on poverty is under way and awaiting necessary data from India.
• Evidence that ACIAR training courses have led to better design of experimental trials of crop genotype performance in different environments.	Two courses were run in 2003, with 28 participants, more than 75 per cent of whom reported that course objectives had been met.
• Farmers in Gujarat purchasing protected nutrient livestock feeds produced on a commercial basis.	The protected-feed mill is running at full capacity with all feed sold on a commercial basis. A second plant is being constructed.

Position

ACIAR engages in projects with India that emphasise sustainable smallholder production, along with the management of scarce water and nutrient resources. Productivity of crops, livestock and aquaculture that will raise farmer incomes remains a priority. Recent research has assisted the adoption of minimal tillage approaches in rice–wheat farming systems, with significant benefits from moisture conservation and weed management in crops. India has a large and well-developed national agricultural research system that has collaborated strongly in ACIAR projects. Additional linkages with groups such as State Agricultural Universities, the National Dairy Development Board and technical NGOs have facilitated technology development and the delivery of benefits.

In September 2003 the Government of India released new policy guidelines for bilateral donors, requesting the development of jointly funded and focused projects on areas of mutual, high priority. This will also result in a greater emphasis on working with independent research organisations and NGOs, but will still aim to deliver benefits to farmers and to assist with policy development for India's poorest regions, mainly in north and central India.

Achievements

Water resource management is vital to India. A project that reviewed water institutions involved in irrigation resourcing and water allocations highlighted the most successful management strategies. The review led to a **framework for assessing successful management practices** in

Above: Women at a water hole in Rajasthan. Below: Water pump

Training session for shepherds in Maharashtra

consultation with key Indian stakeholders. A study of degradation and desertification of arid rangelands is seeking to determine the cause of these problems. Using GIS mapping and ground-based surveys, large amounts of data have been collected and collated. These outcomes are being disseminated through discussions with village communities and relevant administrators, and researchers are also advising on how to prevent further problems.

Improving the productivity of sheep in Maharashtra continues. The Booroola gene has been found responsible for higher than average levels of multiple births in one breed of local sheep. Cross-bred **varieties incorporating the Booroola gene** are being produced and distributed to local shepherds' flocks for testing in the field. Results to date show the introduction of the Booroola gene through both rams and ewes results in progeny inheriting the gene, offering the chance for increased multiple births.

More prolific sheep—a John Allwright Fellowship

Chanda Nimbkar is studying for her PhD under an ACIAR-funded John Allwright Fellowship. The Fellowships are available for postgraduate study in Australia for scientists involved in a current or recent ACIAR project. Chanda has been working on the project *Improved productivity, profitability and sustainability of sheep production in Maharashtra, India*. The project is using the Booroola gene (FecB) identified in native Garole sheep as being responsible for increasing the incidence of multiple births, and passing this gene to other sheep. Chanda and others involved in the project are now working with local shepherds, interbreeding sheep with the Booroola gene into their flocks. The progeny of this breeding have been inheriting the gene, increasing the likelihood of more sheep, and better livelihoods.

Chanda divides her time between study in Armidale, Australia and postgraduate research activities in India. Her work on this project and her commitment to developing a plan to improve the Deccani sheep breed, native to Maharashtra, has been recognised by the Indian Government. Chanda has been appointed to the *Government of India's Central Advisory Committee for the Development of Sheep, Goats and Rabbits*, under the Chairmanship of the Agriculture Minister. She is one of only four 'non-official' members on the council.

Garole sheep, Maharashtra, India

Tannery project

Treating cattle with a fungal inoculum can aid digestion in the rumen, increasing the uptake of benefits from consuming fibre. Special nutrients are added to the feed to encourage growth of the fungus. One fungus-specific nutrient trial that also added sulfur supplements has resulted in **increased feed intake** and better rumen function. Supplemental urea ensured complete utilisation of sulfur, further boosting rumen performance. Trials are now planned to determine if milk production has been enhanced.

Another project has examined the role of feed supplements, making increased protein and fat available in cattle diets. A factory producing these supplements was opened late in 2002, and trials since then continue to show **cattle fed the supplement produce more milk, offering a boost to smallholders' incomes**. This represents an increase in disposable income of between 30 and 70 per cent depending on the breed of cattle. Use of the supplement has also spread to other regions, where similar rises in milk production have been reported.

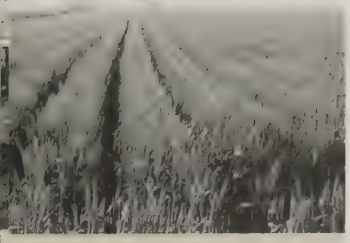
Salt used in tannery processes contaminates soil after disposal of tannery effluent. Salt preserves the hides, but other methods are being developed based on drying and using additives instead. To date these have **proven as effective as salt**, and industry trials are now planned. Recycling and reuse of tannery materials are also showing promise of reduced salt waste. This approach has no ill effects on leather for up to 100 cycles.

The use of ***Stylosanthes*, a tropical legume species**, as forage in animal production is common throughout parts of India and China. Varieties with superior agronomic performance to those currently planted and with the added bonus of resistance to anthracnose (the major disease of *Stylosanthes*) have been selected and released in both countries. Studies of pathogenic fungal groups in each country have enabled scientists to determine the genetic structure of the anthracnose causal agent and understand its virulence for the first time. A diverse population of this causal agent has been revealed in China and India, and this will allow more defined use of resistance and matching of varieties to agro-ecological conditions in future breeding and utilisation.

Breeding of chickpea for improved yield and quality traits and drought resistance has produced several crosses with improved characteristics. Glasshouse and initial field trials to **examine physiological performance**, including the ability of plants to adjust water use in drought, have shown promise. Seed yield and quality were also examined, with results influencing selection of improved breeding material.

Disease resistance in chickpea is the subject of a separate project, also focusing on faba bean and lentil. Sources of resistance to diseases (including Ascochyta blight) for all three crops have been identified, and **promising lines are now at the trial stage**. Management practices for faba bean and chickpea, such as the use of varieties tolerant to

Farming for vegetables in the Punjab



Wheat on raised beds

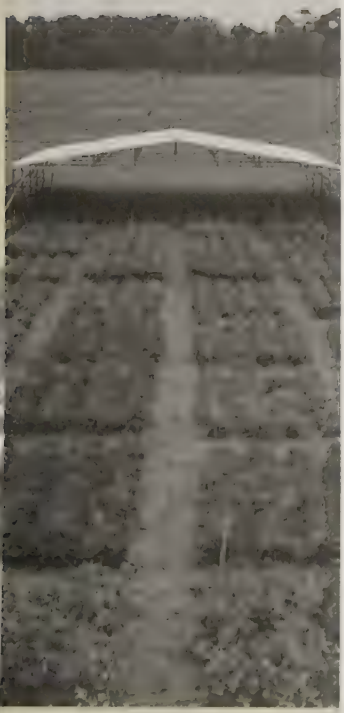
late planting and wide spacing and use of fungicides, revealed yield increases and some protection against Ascochyta. An integrated disease management package incorporating research from this and previous projects has provided robust control of Ascochyta in farmers' fields near ICARDA, in Syria.

The constraints faced by waterlogged wheat crops have been more clearly identified and understood. This includes the identification of two waterlogging environments and the role of micronutrient concentrations in causing seedling toxicity after waterlogging. Such **information is vital when screening for wheat varieties** suited to these environments. More than 12 wheat lines with tolerance to waterlogging have been added to those already identified. The 'Happy Seeder', a locally designed seeding machine to allow direct drilling of seed (with minimal soil disturbance), has been trialled and refinements adopted. The seeder was developed as part of a project evaluating the use of raised cropping beds for rice–wheat farming systems. Optimal approaches such as seed depth and mulch loads are being determined through trials using the 'Happy Seeder'.

The 'Happy Seeder' sowing mung beans into wheat stubble

Evaluation of genetic material and management technologies to improve citrus production in Sikkim continues, with trials of a range of germplasm under-way. Citrus varieties with **some level of resistance to huanglongbing** (greening) disease, prevalent in local varieties, are being assessed, and management techniques to improve productivity of existing varieties are being tested.

Aflatoxin contamination of peanuts is being examined in a project to develop low aflatoxin risk varieties. Genotypes showing little or no infection from *Aspergillus flavus*, the fungus which can cause aflatoxin contamination, have been identified and **early field trials indicate the trait may be stable**. Physiological and biochemical mechanisms affecting aflatoxin production and their impact on contamination levels are also being examined. Drought-resistant peanut varieties with average yield advantages of 20 per cent over currently planted varieties in India's rain-fed and irrigated peanut growing regions have been identified. A new project is developing a two-stage dryer for rice and maize grains in West Bengal. Losses from storage of wet grain significantly hamper the expansion of the grain industry.



Breeding aflatoxin resistant peanuts at ICRISAT

Research has shown that **nutrient application and weed control produce the largest growth responses for eucalypts** planted in Kerala State. This knowledge is being incorporated into existing silviculture programs to create more even growth responses for plantations across Kerala. Plantations based on these practices and economic analyses are also being developed to produce optimal results.

Pakistan

Active projects in 2003–04	6
AOP budgeted expenditure in 2003–04	$514,458
Actual bilateral country expenditure in 2003–04	$697,496
Bilateral country expenditure in 2002–03	$212,104
Bilateral country expenditure in 2001–02	$211,617

Discussion group

Key performance indicators	Performance 2003–04
• Major Gemini virus diseases of cotton in Pakistan documented and molecular characterisation of strains completed.	The cause of cotton leaf curl disease was determined and the role of a small satellite DNA particle in viral recombination identified.
• Construction of test system for saline drain effluent management through serial biological concentration under way.	The start of the project was delayed until early 2004 because of security issues in 2003.

Achievements

Field surveys of Gemini viruses have revealed the presence of a small satellite DNA, in addition to the DNA genome of the virus. The presence of this satellite DNA is associated with **a Gemini viral strain that has broken the resistance** of some cotton and tomato varieties to cotton leaf curl virus. The role of this satellite DNA has been linked to the recombination of virus DNA. Two major groups of satellite DNA have been identified and their role in overcoming host resistance and in the spread of cotton leaf curl disease is now being investigated. This knowledge is helping scientists to develop control methods for Gemini viruses and also to breed more stable resistant varieties.

A new project is seeking to further develop the raised bed cropping system. This has already been proven to raise maize yields in maize–wheat cropping systems by up to 50 per cent while also **using a third less water**. Despite these results the system is relatively unknown in Pakistan and work is needed to extend its use. This project is trialling a series of soil management options and machinery to develop 'best bet' technology and management scenarios for permanent raised beds. Groups of farmers are involved to help ensure further adoption.

A new project to **increase options for agriculture in saline environments** has recently begun. Saline effluent is often drained into river systems, polluting these for downstream users. The project is aiming to develop profitable systems for farmers based on saline drainage effluent from irrigated farms. Crop, tree and aquaculture options will all be examined, along with salt-harvesting technology.

Position

ACIAR maintains a small program that emphasises management of irrigation and drainage, and associated natural resource management. This includes agriculture and forestry on saline soils within a broader focus on overcoming biotic and abiotic constraints in broadacre crop production. Since late 2001, security considerations have hindered the development of further project work in Pakistan.

Farming chickpea

Bangladesh

Active projects in 2003–04	5
AOP budgeted expenditure in 2003–04	$293,769
Actual bilateral country expenditure in 2003–04	$276,729
Bilateral country expenditure in 2002–03	$368,485
Bilateral country expenditure in 2001–02	$310,423

Key performance indicators	Performance 2003–04
• Information packages on sources of arsenic contamination in major food crops developed and communicated to local and international NGOs and Government.	Information packages in local languages have been developed and distributed.
• Impact of botrytis grey mould on chickpea production assessed in major production areas.	Demonstrations of integrated disease management (IDM) practices with chickpea crops on 100 farms, comparing current farmer practices with IDM are under way.

Position

ACIAR's program in Bangladesh is small, given Australia's relatively limited comparative advantage to deal with this country's rice-dominated agricultural problems. Research focuses on constraints to crop production, utilising collaboration with the International Agricultural Research Centres (IARCs). Donor collaboration is encouraged, and a concluding ACIAR-funded project on analysis of the fate of arsenic from groundwater is the research component of a larger initiative on the arsenic problem in Bangladesh, which is funded by AusAID and several international donors.

Achievements

Botrytis grey mould (BGM) is a major constraint to chickpea production, a vital **source of dietary protein for poor farmers**, in Bangladesh. Current approaches to managing BGM are too expensive for Bangladeshi farmers. Cultures of *Botrytis cinerea* (the causal agent of BGM) have been collected and are undergoing DNA testing to aid in screening suitable chickpea breeding material. Almost 500 lines have been assembled and testing has already revealed differences in disease reactions. Integrated crop management trials involving farmers have demonstrated yield increases of 20–40 per cent. The use of seed from non-BGM infected areas is one example of the management practices being trialled.

Arsenic contamination of soil and crops in Bangladesh continues to exact a high human toll. Irrigation using groundwater has been revealed as a potential source of arsenic transfer to vegetable crops. Levels of arsenic accumulation in crops have also been determined. Key sites where **arsenic poisonings** have been high have been sampled, including soils and groundwater, to produce a database of accumulations. Tests on the role of organic manures have revealed no changes to arsenic accumulation in crops. The addition of high levels of phosphate has been shown to decrease arsenic accumulations, but low levels of phosphate fertiliser can increase accumulations. Information packages in local languages are being disseminated.

Other South Asian countries

Active projects in 2003–04	9
AOP budgeted expenditure in 2003–04	$504,428
Actual bilateral country expenditure in 2003–04	$562,575*

** The 2003–04 Annual Operational Plan grouped Afghanistan, Bhutan, Nepal and Sri Lanka together under Other South Asia, for budgeting and reporting purposes. Bilateral expenditure figures for these countries for the financial years 2001–02 and 2002–03 are reported separately in the country tables that follow. Similarly, key performance indicators for Other South Asia were grouped together and are reported against below.*

Key performance indicators	Performance 2003–04
• Implementation of fishery stock management strategies for reservoir fisheries in Sri Lanka.	An aquaculture capability classification scheme has been developed and validated for seasonal tanks, and is being used to guide Government policy. Strategies are being disseminated through extension materials, and community meetings.
• Adoption of control strategies for citrus fruit flies by agriculturalists in Bhutan.	Due to a severe outbreak of citrus dieback in 2003 ACIAR agreed to put the project on hold until April 2004, as Bhutanese agriculturalists had to deal with the disease outbreak.

Afghanistan

Active projects in 2003–04	1
Bilateral country expenditure in 2002–03	$0*
Bilateral country expenditure in 2001–02	$0

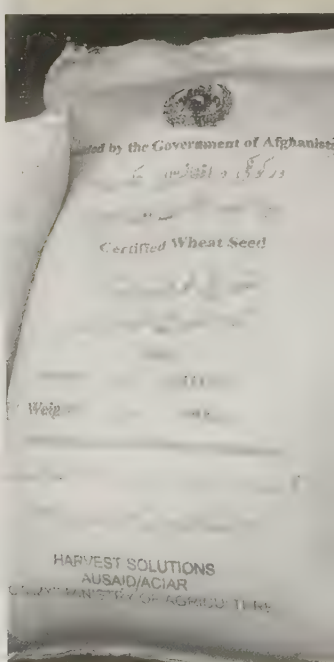
** $650,000 in multilateral funding*

Position

ACIAR's first multilateral project in Afghanistan provided short-term support to wheat and maize production, wheat being by far the most important crop and maize the third most important. Two decades of war devastated Afghanistan's food-production capabilities and depleted critical seed stocks, leaving the nation heavily dependent on food aid from international donors. Further research initiatives will continue to emphasise improved crop varieties and agronomic management of broadacre crops.

Achievements

ACIAR managed an AusAID-funded project, implemented by CIMMYT, to introduce improved wheat and maize varieties to Afghanistan. Stocks of seed of both grains were severely depleted and destroyed by years of conflict, with surviving varieties poorly suited to local growing conditions. During the project **wheat has been distributed via NGOs to 9000 farmers** in four provinces, along with fertiliser inputs provided by other international donors. These new varieties have yielded up to 5 tonnes per



Certified bag of wheat for Afghanistan

Farmer training in Afghanistan

hectare and better, almost double the yield of locally favoured varieties. Thirty-five variety trials and wheat nurseries have been established at six sites. Seed multiplication sites to ensure seed production that will support future crops have also been set up. A new winter wheat variety, Solh-02 ('Solh' means peace), was released. The Darul Aman Research Station near Kabul now supports wheat germplasm nurseries and wheat trials.

Seven varieties of open (naturally) pollinated maize seed, previously identified as suitable for Afghan conditions, were also imported, with 2.5 tonnes distributed to 500 farmers via the Ministry of Agriculture and Animal Husbandry (MAAH) and NGOs in time for the 2003 planting season. Evaluation and multiplication was also undertaken. Promising open pollinated varieties yielding up to 6 tonnes per hectare were identified, and a further 60 elite varieties were trialled at eight sites.

Since mid-2002 Afghan wheat scientist Dr Mahmood Osmanzai has been based in Kabul, and 15 researchers and agronomists from MAAH have attended CIMMYT **training courses** in Turkey and Mexico. In-country MAAH staff received a variety of on-farm training, including instruction on how to undertake surveys to identify yield-limiting factors.

Bhutan

Active projects in 2003–04	1
Bilateral country expenditure in 2002–03	$44,145
Bilateral country expenditure in 2001–02	$67,575

Position

ACIAR's small program with Bhutan began in 1998. Because of Australia's relatively low comparative advantage, the program will remain very small, with a current focus on pest and disease management.

Bhutan fields

Achievements

ACIAR's single project in Bhutan was put on hold in 2003–04 due to a severe outbreak of citrus dieback, halting the mandarin fruiting season, and limiting the capacity of the project personnel to trial fruit fly control approaches in the field. The main pest species of fruit fly has been identified and trials to use protein bait sprays to disrupt breeding cycles during the fruiting season have only recently recommenced.

Nepal

Active projects in 2003–04	3
Bilateral country expenditure in 2002–03	$188,503
Bilateral country expenditure in 2001–02	$175,304

Position

Almost 85 per cent of Nepal's population live in rural areas and the majority of these are involved in agriculture. ACIAR has had a small program of projects in Nepal, with an emphasis on crop production and management, and on some aspects of animal health in the lowland Terai, which has most in common with Australian environments.

Achievements

Efforts to improve quality of lentil, a valuable crop for smallholders who can easily sell produce to Indian markets, have identified the importance of management to improve yields. Seed priming (soaking seeds before planting) has been shown to boost yields considerably, in some cases by as much as 40 per cent. Researchers have undertaken training in breeding and statistical analysis. Extension activities have increased farmer participation, including seed production of promising new lentil varieties for field trials. **Lentil varieties resistant to the fungal disease** caused by *Stemphyllium*, a major threat to production, were trialled, with resistant varieties showing yield increases up to 33 per cent more than local varieties. The same project also aims to improve lathyrus (grass pea), which is widely grown but potentially toxic. Varieties that have lower levels of toxicity are being sourced.

Above: Nepalese livestock.

Above: Mountains of Nepal and below— workshop in session

Sri Lanka

Active projects in 2003–04	4
Bilateral country expenditure in 2002–03	$382,480
Bilateral country expenditure in 2001–02	$159,417

Position

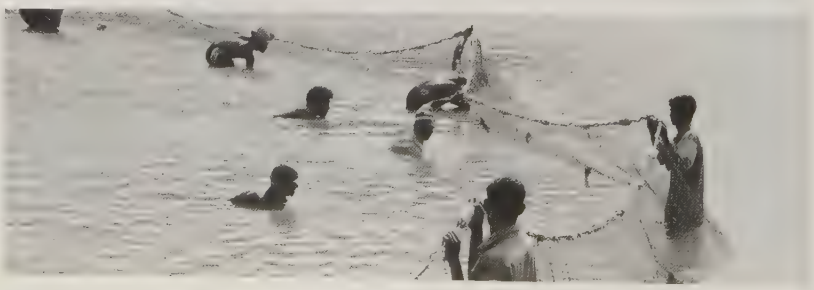
ACIAR maintains a small program with Sri Lanka. Most collaboration has been in animal sciences, especially animal health. Other areas have included fisheries, farming systems economics, agricultural development policy, crop sciences, forestry and crop postharvest technology. Several past project outputs are being used in new Asian Development Bank-funded projects. ACIAR maintains a small program in Sri Lanka. On occasions, ACIAR supports Sri Lankan scientists as specialist advisers to assist in projects in the region.

Achievements

A predictive model for yields of fish in perennial tropical reservoirs, developed in an earlier ACIAR project, has been simplified for use by extension workers in Sri Lanka. The model has been validated, based on **catchment land-use patterns** and using data collected by the National Aquatic Resources Agency. Sixteen reservoirs have been chosen for studies to develop culture-based fisheries, with experiments raising fingerlings and fry underway in three reservoirs. Farmer-made feeds are being used, and initial trials are proving that cage culturing is a viable possibility.

Postharvest diseases of tropical fruits frequently cause more than 20 per cent loss—current methods do not reliably control disease during retail marketing and export, causing reliance on fungicide treatment. Improved strategies for managing losses can be developed by boosting the natural defence factors in fruit. Host defence mechanisms in mango and banana are being characterised, along with defence-boosting treatments on mango. The role of mango sap in disease resistance is being studied with the role of management practices, such as harvesting fruit with longer stems, being assessed for their capacity to reduce sap loss and enhance disease resistance. Facilities at the University of Peradeniya to undertake plant defence research have been upgraded. Natural defensive compounds identified in mango and banana species are now being characterised and investigated.

Fish harvesting



Southern Africa

Financial year	Regional expenditure	Percentage of total bilateral expenditure	Board target as percentage of expenditure
2003–04	$745,392	2.9	<5%)
2002–03	$1,219,403	4.6	5-10%
2001–02	$1,343,916	5.5	5-10%

In 2002–03, the Board, in consultation with the Minister, reviewed the expenditure targets for each of the five regions. It was decided to reduce the target range for southern Africa to less than 5 per cent beginning in 2003–04. This decision was consistent with the *Statement to Parliament by the Minister on Australia's Development Cooperation Program* in September 2002. The bilateral African program, now largely focused on the Republic of South Africa, is 2.9 per cent of total bilateral expenditure.

ACIAR regional team leader for Southern Africa: Dr Bill Winter.

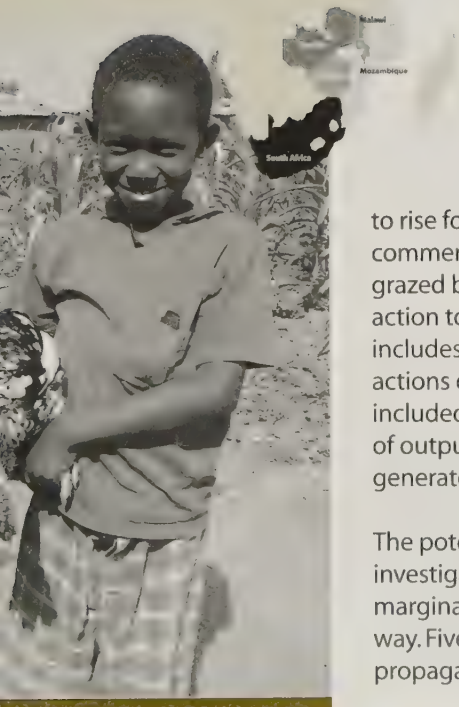
Southern Africa Page 72

Cattle dip

Southern Africa

Active projects in 2003–04	10
AOP budgeted expenditure in 2003–04	$857,892
Actual bilateral country expenditure in 2003–04	$611,352
Bilateral country expenditure in 2002–03	$1,219,403
Bilateral country expenditure in 2001–02	$1,343,916

Key performance indicators	Performance 2003–04
• Emerging cattle farmer groups shown to make sound management and marketing decisions independent of project researchers.	Fourteen farmer teams in Limpopo and North Western Provinces have implemented project results with the aim of improving profit, and have exceeded their target levels.
• Identification of Eucalyptus hybrids to be trialled in low-rainfall environments.	In the Republic of South Africa three species of Eucalyptus and three hybrid Eucalyptus crosses including several provenances have been identified. Work is proceeding on making crosses and testing.



Position

ACIAR has been involved in research in Africa since 1983, with around 40 projects completed. The focus for ACIAR's bilateral program over the last three years has been on southern Africa (Republic of South Africa (RSA), Zimbabwe and Mozambique). Multilateral projects led by International Agricultural Research Centres have in the past carried out activities in a number of central, eastern and western African countries as well as southern Africa. New projects focus on South Africa, emphasising crop–livestock systems and forestry, with an emphasis on delivering benefits for previously disadvantaged emerging farmers.

Achievements

Profitability in the smallholder cattle sector continues to rise following research that demonstrated no barriers to entry into commercial markets based on the quality of beef from cattle breeds grazed by poor farmers. Fourteen farmer teams are involved in focused action to test and develop methods to further increase profitability. This includes different **drivers of profitability** with information on successful actions disseminated to farmer-support teams for extension. This has included a Field Day targeting resource-poor farmers with demonstrations of outputs from the project, resulting in substantial interest being generated amongst poor farmers.

The potential of eucalypts to meet timber production shortfalls is being investigated in RSA. Selection of potential hybrids for planting on dry marginal lands that otherwise have little agronomic value is under way. Five dry-zone eucalypt species are being trialled in a vegetative propagation study, with two provenance trials in progress. Research

continues to **screen eucalypt species for susceptibility to a rust fungus** that has affected eucalypts planted in southern Africa and South America. Sixteen seedlots are being inoculated. The role of climatic events in triggering outbreaks is being defined, and a model designed to predict such events is under development.

Eucalyptus grandis

Low levels of **soil fertility in southern Africa substantially prevent crops** reaching their yield potential. Appropriate fertiliser applications can overcome this, but very few smallholder farmers understand the value of applying fertilisers. Simulation modelling of potential fertiliser inputs and other interactions has been successfully used in maize systems in an ongoing project in Malawi and Zimbabwe. Farmers involved have been quick to see the potential benefits on offer after modelling of interactions between climate, fertiliser use and perennial crops. The APSIM suite of crop simulation modules has underpinned the development of decision-support tools developed through participatory research with farmers. The effect of phosphorus and farmyard manure can now be modelled and the effect of planting legumes on soil nitrogen levels has been demonstrated. Scaling up of decision-support trees (charts) and simple rules-of-thumb continues in Malawi. A new project is introducing this participatory approach to northern RSA.

Vaccine field trials

A similar participatory approach was used in a project that introduced improved forages and ley-legumes (legumes sown to increase soil nitrogen) to RSA and Zimbabwe. A range of **legumes was introduced and evaluated** in several farming systems—intercropped with maize and sorghum, in natural pastures for grazing, and as protein supplements for dairy and beef production. A number of promising lines have been identified for cropping and animal production systems. There is also greater knowledge of cropping behaviour, such as soil nitrogen interactions in a range of environments. The project also had an unintended positive impact, significantly boosting the development of community interactions between farmers, extension workers and researchers.

*Leading scientists from across Africa were provided with **training in water use and soil fertility management.** They received training through interaction with CSIRO and State agencies from Perth to Toowoomba, and visited farms applying the latest technology in both fields.*

A vaccine currently used against ticks does not impart complete tick control and similar vaccines have storage and distribution problems. Two new vaccines are being developed, with initial trials in Zimbabwe showing one as a feasible option for cattle in RSA. Vaccines against the tick-borne diseases anaplasmosis and babesiosis are being tested **using cryo-preservation to improve their efficacy**. Tests to date have revealed freeze-drying at the right temperature will ensure the vaccines are viable for up to four months. Work to develop optimal container shapes and volumes to support cryo-preservation are now under way.

Computers enable the answers to farmers' questions in Africa

When Sevi, Derrick and Samuel first heard about simulation modelling and agreed to participate in a three-day workshop they had possibly never seen a computer. In all likelihood they and their 18 colleagues had no idea what computers could do and how valuable they could be to farmers. The three farmers from Mkhubazi village in Tsholotsho, Zimbabwe, soon discovered otherwise. They were introduced to computer simulations by a group of researchers involved in ACIAR-supported work on linking participatory farming with modelling, using APSIM.

The farmers were encouraged to ask 'what if' questions, which the computer simulation would answer for them. Sevi was the first to see its potential, after being presented with a graph showing crop yields based on past years rainfall. "Why is the sorghum yield in a year with more than 800 millimetres rainfall less than the yield in a year with only 480 mm?" This stimulated discussion, allowing farmers to test their knowledge and ideas and validate these. Derrick saw the potential for using manure on small cropping areas to improve quality without investing more money. Before the simulation he believed "the effort from manure is not worth it". After seeing the simulation recommending he collect and use manure Derrick responded "this is what I will do". Samuel, a wealthier farmer saw that even a single bag of nitrogen fertiliser, when used on his land, would result in significant benefits in most seasons. By the end of the three-day workshop the initial group of 21 farmers had grown to more than 30, all of whom realised that the simple changes modelled could provide them with real benefits.

Multilateral program

AOP budgeted expenditure in 2003–04	$9,676,128
Actual expenditure in 2003–04	$10,200,514
Expenditure in 2002–03	$9,827,219
Expenditure in 2001–02	$10,460,768
Proportion of total ACIAR expenditure 2003–04	20.4%

Position

ACIAR administers, on behalf of the Australian Government, Australia's contribution to the internationally funded independent non-profit international agricultural research centres (IARCs). The IARCs carry out research and related activities to help achieve sustainable food security and reduce poverty in developing countries through scientific research-related activities in agriculture, forestry, fisheries, policy and environment.

The goal of ACIAR's multilateral program is to ensure the effectiveness of, and benefits to, developing countries and Australia from agricultural research conducted by the IARCs with funds provided by Australia.

ACIAR's policy position towards contributions to the IARCs involves:

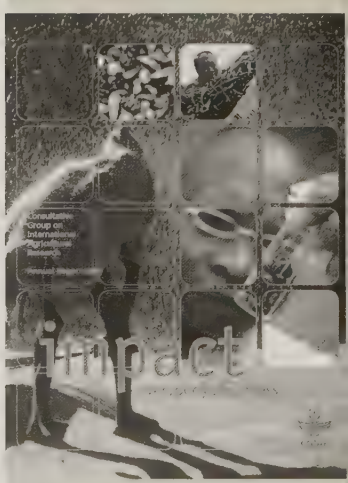
- allocating around 20 per cent of ACIAR's total appropriation to the IARCs
- allocating between one-third and half of ACIAR's annual IARC investment as project-specific funding
- focusing its unrestricted (non-project specific) funds on a reduced number of centres, based on comparative research advantages.

Disbursement of multilateral funds, 2003–04

Unrestricted contributions to IARCs amounted to 54 per cent and project-specific funding to 45 per cent of total multilateral research funding in 2003–04. The remaining 1 per cent was spent on other multilateral activities. Fifteen IARCs received funding, 13 of which received core funding (untied to specific projects). Allocations are based on the comparative advantage of individual IARCs to deliver research applicable to Australia's regional priorities. Five of the 13 centres receiving core funding are located in the Asia-Pacific region and another six have a mandate that covers staple crops in the region. The remaining two, CAB International (CABI) and IFPRI, are responsible for research information systems and food policy respectively.

All 15 funded centres received project-specific funding through ACIAR this year. Fourteen of the centres are associated with the Consultative Group on International Agricultural Research (CGIAR), while one (CABI) works in an area of agricultural development of particular interest to Australia.

Project-specific research funding aims to build tripartite research linkages between IARCs, advanced research institutions in Australia and national



CGIAR Annual Report 2003 can be viewed at www.cgiar.org

ACIAR provides support to relevant CGIAR systemwide initiatives (cross-centre programs that link research complementarities of different centres to address and resolve global and regional issues through strategic research approaches). Support was provided to the following initiatives:

- Sustainable endoparasite control for small ruminants in Southeast Asia
- Technical support for regional plant genetic resources development in the Pacific
- Alternatives to slash and burn in Southeast Asia, phase 3: Facilitating development of agroforestry systems
- Integrated nutrient management in tropical cropping systems: Improved capabilities in modelling and recommendations
- Fish in food: The critical role of fish in world food issues

Other support activities include contributions to the Asia-Pacific Association of Agricultural Research Institutions (APAARI), the Asia-Pacific Association of Forestry Research Institutions (APAFRI) and to the Crawford Memorial Lecture at the CGIAR Annual General Meeting.

agricultural research institutes in developing countries, particularly those that are ACIAR bilateral partners. Project-specific funding supports projects that are developed and managed as part of ACIAR's 11 discipline-based research programs, complementing and adding value to the bilateral programs run by the discipline areas. In 2003–04, five new activities were initiated and eleven completed. Including these, a total of 29 projects were active in 2003–04.

Project examples

In conjunction with the **WorldFish Center** a project has been reviewing optimal release strategies for restocking juvenile sandfish and cucumber. Juvenile sandfish (*Holothuria scabra*) produced in 2002–03 and 2003–04 have been used in experiments to determine the necessary conditions to yield high survival rates after release into the sea, with good early results. Using aquaculture ponds to rear young fish and tagging these fish on release to track their survival rates are also being trialled, again with promising results.

A two-year project with **CABI** to develop an Aquaculture Compendium is progressing well. The Compendium will include a number of case studies of specific aquaculture industries in different locations. Several Australian scientists have been engaged to write case studies and this will strengthen linkages between Australian institutions and IARCs as well as increase the Compendium's relevance to Australia.

In many tropical regions, organic materials are an important component of soil fertility, often providing greater benefits than fertilisers. Current fertiliser recommendations and most crop models do not take account of these organic inputs. An **International Center for Tropical Agriculture** (CIAT) project successfully developed a modelling capability by improving the APSIM Manure and Soil Phosphorus modules so that APSIM can be used to explore improved soil fertility management scenarios in low fertiliser input systems in the tropics.

The **Center for International Forestry Research** (CIFOR) has carried out research on the initial impacts of decentralisation of forest administration and management in Indonesia following 30 years of centralised administration by the Ministry of Forestry in Jakarta. The project revealed this shift has intensified pressures on forests, but has also in some other areas made government decision-making more responsive to communities whose livelihoods depend on forest resources.

The **International Maize and Wheat Improvement Center** (CIMMYT) in collaboration with the Agricultural Research Institute of Afghanistan, Ministry of Agriculture and Animal Husbandry, and with local and international NGOs has distributed improved wheat and maize varieties to farmers. Seed multiplication of the best lines is underway, along with training of Afghan wheat and maize scientists. AusAID funds this project, which ACIAR administers.

Power of partnerships

An **International Potato Center** (CIP) project on sweet potato–pig farming systems in West Papua (Indonesia) has selected three new sweet potato clones for registration, based on their protein and dry matter content. Modified diets for pigs based on these varieties have achieved growth rates of 200 g/day, compared with less than 30 g/day in pigs fed traditional diets.

A project implemented by the **International Center for Agricultural Research in the Dry Areas** (ICARDA) is conserving, evaluating and utilising the unique plant genetic resources found in Central Asia and the Caucasus. An important facet of the work is increasing the capacity of partner country scientists to collect, conserve and use unique plant genetic resources within their countries.

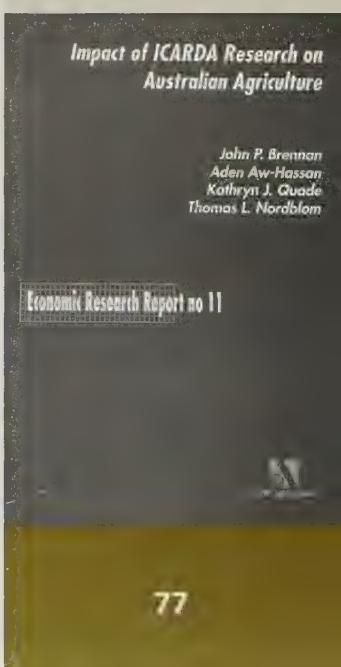
Another **ICARDA** project has made good progress on the identification of new sources of disease resistance in chickpea, faba bean and lentil. The understanding of the epidemiology and virulence of the diseases has been expanded, and development and testing of integrated disease management packages carried out at ICARDA's headquarters in Syria.

In South Africa yields of maize on smallholder farms average less than 1 t/ha, partly due to limited or no fertiliser use. A key factor in the limited use of fertilisers are that recommendation rates are too broad and do not cater to local conditions, rainfall and other aspects of climate variability. The **International Crops Research Institute for the Semi-Arid Tropics** (ICRISAT) is working with national agricultural research system scientists, extension specialists and market and policy analysts in Limpopo Province to develop and disseminate more appropriate fertiliser management recommendations for smallholder farmers and improved fertiliser policy analyses.

In conjunction with Chinese government agencies and Gansu Agricultural University, the **International Food Policy Research Institute** (IFPRI) is undertaking multi-level analysis of the impact of WTO entry on western area smallholders, and offering policy options, particularly in public investment, to achieve economic growth and poverty alleviation as well as to buffer adverse shocks.

In conjunction with Australian and in-country partners, the **International Livestock Research Institute** (ILRI) has carried out surveys of smallholder farms in the Philippines and Indonesia to determine levels of parasite resistance in sheep and goats. The survey has found that resistant parasites are not yet common in either industry.

An **International Plant Genetics Resources Institute** (IPGRI) project involving Australia, Thailand, Vietnam and the Philippines is developing new techniques to conserve germplasm in a range of priority Asian tropical fruits. The initial stages of the project involved developing micro-propagation systems for mango, papaya, Australian native fruits, *Nephelium*, citrus, persimmon, litchi and longan, and developing successful tissue culture systems to provide plant material for cryo-preservation work.



Heather Crompton oversees the Multilateral Program

In China, the **International Water Management Institute** (IWMI) and the **International Rice Research Institute** (IRRI) have made progress in growing rice crops without continuous flooding ('aerobic rice'). Trials with farmers were initiated so that direct feedback could be obtained. Early results offer promise, but further research is needed to validate these findings.

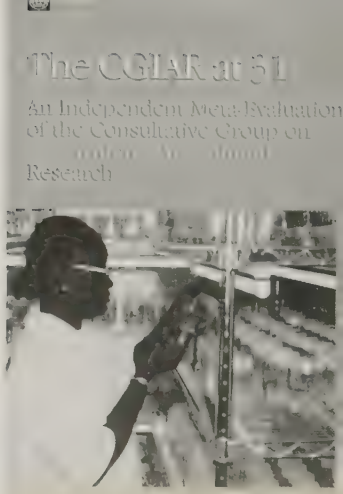
The **World Agroforestry Centre** is working with national institutions and communities in Southeast Asia to identify agroforestry land use systems as alternatives to traditional slash and burn agriculture, to reduce impacts on soil and water in catchments. Computer modelling of soil and water movement is a vital technology in the research and is used to develop tools to facilitate negotiation between farmers and government catchment managers.

Funding to IARCs for 2003–04

Acronym	Centre title and location	Core funding (A$)	Project-specific funding (A$)	Total (A$)
CABI[1]	CAB International, United Kingdom	300,000	282,838	582,838
CIAT	International Center for Tropical Agriculture, Colombia	0	55,000	55,000
CIFOR	Center for International Forestry Research, Indonesia	300,000	220,378	520,378
CIMMYT	International Maize and Wheat Improvement Center, Mexico	700,000	841,331[2]	875,381
CIP	International Potato Center, Peru	330,000	216,977	546,977
ICARDA	International Center for Agricultural Research in Dry Areas, Syria	250,000	464,006	714,006
ICRISAT	International Crops Research Institute for the Semi-Arid Tropics, India	550,000	439,029	989,029
IFPRI	International Food Policy Research Institute, United States of America	450,000	199,528[2]	569,528
IITA	International Institute of Tropical Agriculture, Nigeria	0	97,338	97,338
ILRI	International Livestock Research Institute, Kenya	300,000	106,151	406,151
IPGRI	International Plant Genetic Resources Institute, Italy	300,000	452,194	752,194
IRRI	International Rice Research Institute, Philippines	850,000	244,845	1,094,845
IWMI	International Water Management Institute, Sri Lanka	500,000	305,581	805,581
World Agroforestry Center	World Agroforestry Centre, Kenya	250,000	331,404	581,404
WorldFish Center	WorldFish Center, Malaysia	450,000	298,111	748,111
Total funds to IARCs		**5,530,000**	**4,554,711**	**10,084,711**

[1] *Centre not associated with the CGIAR.*
[2] *Includes funding from AusAID, provided through ACIAR.*

Location of international centres receiving core funding from ACIAR



www.cgiar.org

Delivering benefits internationally—and to Australia

New sources of germplasm are the lifeblood of plant breeding, but finding and collecting these can be difficult. ACIAR, in collaboration with ICARDA and Australia's Grains Research and Development Corporation, have been supporting work to collect, for conservation and utilisation, a wide variety of field crop genotypes from Central Asia and the Caucasus. Ken Street, an Australian scientist based at ICARDA in Syria, has been leading the collection efforts. "The Central Asian and Caucus region is a treasure trove of genetic material for many cereal crops and legumes. But the danger is that this unique source of genes will be gone before we know it and that's where our collecting comes in."

The similarity of cropping lands in central Asia to many other countries, including Australia, makes the region ideal for collecting genetic material. Dr Street believes the genetic answers to many diseases and soil problems may already exist. "Many of the plants are tolerant to stresses like drought and diseases, offering great potential for incorporation into breeding programs to overcome these and other problems." The seed collected by Dr Street and his colleagues will end up in international gene banks, and be freely available for use in breeding programs to benefit developing countries and Australia.

In addition to collecting new material, the ACIAR program in Central Asia and the Caucasus is also facilitating the development of national genetic resource conservation programs. This activity has included development of genetic resource units with controlled temperature storage facilities, ensuring each country in the region can better conserve their rich but threatened genetic resources. The international plant breeding community also benefits as the improvements will help facilitate productive germplasm exchange programs.

Sharon Harvey, Education and Training Officer

Building research capacity

AOP budgeted expenditure in 2003–04	$2,403,000
Actual expenditure in 2003–04	$2,465,634
Expenditure in 2002–03	$2,513,554
Expenditure in 2001–02	$1,995,000
Proportion of total ACIAR expenditure 2003–04	4.9%

Key performance indicators	Performance 2003–04
• New short course on research management successfully run in three countries.	Course run in three countries (Vietnam, Pacific and Indonesia).
• Inaugural John Dillon Fellows rate the research management training provided as 'very good' or better.	All inaugural fellows rated the course as very good or better.
• At least eight students successfully complete postgraduate awards.	Six fellows completed postgraduate studies; a further five fellows were permitted to transfer to a higher award or extend their fellowship.

Position

The goal of this program is to build the research capacity of agricultural research institutions in partner countries by providing both discipline-specific and broader training opportunities where suitable.

ACIAR supports training that relates directly to the Centre's projects, complementing research in active, recently concluded or advanced pipeline projects through the provision of:

- postgraduate fellowships (John Allwright Fellowship Scheme)
- research management training (John Dillon Memorial Fellowship)
- short-term cross-discipline training courses for ACIAR project staff
- training courses provided through the ATSE Crawford Fund for project staff on ACIAR-funded projects.

There is a particular emphasis on providing postgraduate and short-course training for ACIAR project scientists from PNG, the Pacific Islands, eastern Indonesia, East Timor, Cambodia, Vietnam and Laos.

Achievements

Postgraduate fellowships

John Allwright Fellowships are the main activity administered by ACIAR's training program. Fellowships are awarded to project scientists from developing countries currently or recently involved in an active ACIAR project, to undertake Masters or PhD training at Australian universities. The focus of a fellow's studies is strongly related to the theme of the project, but is not considered a part of the project.

In 2003–04, $1.53 million was expended on the John Allwright Fellowship Scheme, with 50 active fellowships representing 15 countries. Six fellows completed their studies during the year, and eight, from Indonesia, Papua New Guinea and the Philippines, commenced at seven universities in Australia. During their Fellowship all fellows spend a week visiting ACIAR headquarters, to receive training in science communication, writing research papers and a range of other activities.

Australian Youth Ambassadors for Development

Australian Youth Ambassadors for Development (AYAD) is an AusAID-funded scheme providing young Australians with an opportunity to spend between three and 12 months assisting a development activity in a partner country. During 2003–04 ACIAR provided nine assignments for Youth Ambassadors working on ACIAR projects in developing countries.

There were five active Youth Ambassadors at 30 June 2004 situated in:

- China, with one working on postharvest handling and disease control in melons studying host-pathogen interactions on Chinese melon cultivars

- the Philippines, where one AYAD is working on a rodent management project in the rice terraces in the Ifugao region of Luzon. A second has been assigned jointly to ACIAR projects on Landcare in the Philippines and water resources management of the Inabanga watershed, Bohol Island, monitoring impacts of agriculture on water quality
- Cambodia, where an AYAD is working on assessing availability of groundwater resources for supplementary irrigation in the rain-fed lowlands of particular districts in Takeo and Kampong Cham provinces
- Vietnam, where an AYAD is conducting surveys to identify the key postharvest diseases of Vietnamese temperate fruits and is also assisting with training Vietnamese staff in scientific methodology.

ATSE Crawford Fund fellowships, training courses and Master Classes

In 2003–04 ACIAR provided the ATSE Crawford Fund with funding of $861,115, including management of an Australian Government allocation of $650,000, as well as $211,115 for joint training activities. The ATSE Crawford Fund also attracted contributions from State Governments and the private sector.

In 2003–04 the Crawford Fund conducted short-term training activities associated with ACIAR projects, including Master Classes on management of agricultural biosecurity, and on research management (University of New England).

Training courses including individual training activities associated with ACIAR projects were:

- Detection of ergosterol in paddy using solid phase extraction and HPLC (University of NSW)
- International workshop on agricultural supply chain management in developing countries (Queensland Department of Primary Industries and Fisheries)
- Seminar on status of grain drying in South Asia (University of NSW)
- Agricultural leadership for sustained improvement and innovation in South Africa (CSIRO Livestock Industries)
- Training workshop in using risk factor analysis to investigate pre-weaning mortalities in pigs (South Australian Research and Development Institute).

These classes and workshops helped ensure ACIAR research results were more widely applied in developing countries as ACIAR project leaders instruct scientists from countries other than those where their projects are situated.

The Crawford Fund also sponsors short-term training fellowships. In 2003–04 the Fund sponsored three fellowships to enable members of ACIAR project teams to undertake training activities in Australia for up to three months.

Returnee small project awards

John Allwright Fellows who have returned to relevant employment in their home country after completion of their postgraduate studies, are eligible to apply for grants of up to $10,000 as follow-on funding. The returnee scheme provides funding for an activity which continues, or is related to, the research done within an ACIAR project associated with postgraduate work. These grants are primarily aimed at developing small-scale research projects in the returnee's institution, which may catalyse longer-term support. In 2003–04 six small grants totalling $45,985 were awarded.

John Dillon Memorial Fellowship

The John Dillon Memorial Fellowship aims to develop the leadership skills of Fellows in the areas of agricultural research management, agricultural policy and/or extension technologies, through exposure to Australian best-practice organisations involved in research, extension and/or policy making. The Fellowships provide a tailored career development opportunity for a small number of outstanding partner country agricultural scientists or agricultural economists actively involved with ACIAR projects. Three John Dillon Fellows from Cambodia, Indonesia and Vietnam visited in February–March 2004 for approximately six weeks each. This included a meeting with Minister Downer at Parliament House.

Cross-program training

Cross-program training courses conducted by ACIAR in 2003–04 were:

- *Follow-up to experimental design and analysis training (Cambodia)* Training on writing project proposals and presenting results was delivered to Cambodian scientists in October 2003 and February 2004.
- *Evaluation training for agricultural research projects (Fiji)* In April 2004 a training course was held in Nadi, Fiji, attended by 19 project leaders and team members involved in ACIAR projects in Samoa, Solomon Islands, Noumea, Vanuatu and Fiji.
- *Genotype x environment analysis (Cambodia)* A course on introduction to modern PC-based data handling and statistical methods was held for 23 Cambodian researchers working on ACIAR-funded and managed projects in early November 2003.
- *Follow-up to experimental design and analysis training (Cambodia)* A follow-up course to the training on introduction to modern PC-based data handling and statistical methods was held in June 2004 and provided one-on-one training to individual project scientists.
- *Economics, marketing and extension for agricultural scientists (PNG)* Co-funded by AusAID, the course was held in Lae during May 2004 and included modules on production economics, commodity marketing, trade and supply chain management.
- *Research management and priority-setting (Indonesia)* This course, requested by the Director-General of Marine Affairs and Fisheries Research, was presented to 21 Indonesian project staff involved in ACIAR projects.
- *Short course on experimental design and statistical analysis (Indonesia)* Following the internet-based data analysis/statistics course provided by the University of Canberra to ACIAR project staff in Lombok, an eight-day follow-on course was held in Bali in June 2004 for the original participants and other Indonesian ACIAR project staff.
- *An introduction to modern PC-based data handling and statistical methods* took place in Nepal during March 2004 for 15 students. This followed on from the successful short course run by The University of Western Australia on *Genotype by environmental analysis* held in Nepal (Kathmandu) in 2002–03.

Indonesian scientists at a training course on research management

Communicating research

AOP budgeted expenditure in 2003–04	$735,000
Actual expenditure in 2003–04	$742,721
Expenditure in 2002–03	$702,225
Expenditure in 2001–02	$897,000
Proportion of total ACIAR expenditure 2003–04	1.5%

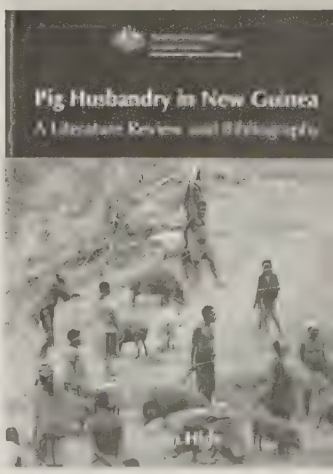
Key performance indicators	Performance 2003–04
• Number of visitors to ACIAR's website increases steadily.	106,184 unique visitors, with monthly trends rising gradually.
• Downloads of publications from ACIAR's website increase by more than 20% over the year.	Monthly downloads increased by 180 per cent from October to June.
• At least 15 John Allwright Fellows receive training in scientific communication.	Twelve John Allwright Fellows and three Dillon Fellows received training and information.
• Outputs, outcomes and impacts of concluded ACIAR-funded projects are displayed on the ACIAR website.	Concluded project summaries now available.
• The agriculture and rural development section of the Australian Development Gateway includes links to ACIAR materials.	The Gateway includes links to ACIAR material.

Position

ACIAR has a statutory obligation to communicate the results of the research it funds. ACIAR's scientific publishing program aims to help bridge the gap between research and adoption by providing low-cost access to syntheses of information from individual projects or programs of work. ACIAR uses current information and communication technologies (ICTs) to disseminate research information, taking account of constraints in access and familiarity with these technologies in partner countries. ACIAR also works with its partners to build capacity in scientific and technological communication for development purposes.

Achievements

During 2003–04 ACIAR published and distributed 20 new titles in its scientific series (four monographs, six proceedings, six technical reports and four ACIAR working papers), and four reports in its impact assessment series. These are listed in Appendix 4, together with the corporate and research awareness titles produced during the year. In addition, Vietnamese translations of three ACIAR publications were supported, and Asian language versions of two monographs were issued in collaboration with CIAT.



Pigs are an integral part of the culture and political organisation of many New Guinean tribes. The monograph *Pig husbandry in New Guinea* summarises current knowledge of pig production systems in PNG and Papua (Irian Jaya), and is a valuable resource for those concerned with animal production, animal and human health, food supply and nutrition

Heather Briggs, Program Manager

Maureen Kenning Program Assistant

Robin Taylor Publications Manager

Warren Page, Science Communicator and Web Manager

Partner to www.developmentgateway.com.au

in New Guinea. It complements ACIAR projects on improving the productivity of traditional pig production systems. Another popular new monograph, *Field methods for rodent studies in Asia and the Indo-Pacific region*, is the product of past and ongoing collaborations with rodent researchers in many Southeast Asian countries, as well as interactions with European colleagues. It covers methods for studying pest rodents and the damage they cause in fields. The books will be used as standard reference works by researchers, students and technical officers.

In developing countries, tree plantations and agroforestry have become an increasingly important source of timber, fuelwood and raw materials for pulp and paper. *Eucalypts in Asia* is the proceedings of an international conference on this topic, and covers many of the issues that have arisen as a result of the introduction of eucalypt species and the development of new rural industries based on their utilisation.

ACIAR has worked to help the re-establishment of East Timor's agricultural sector since late 2000. The book *Agriculture: new directions for a new nation* contains papers presented at the first international agricultural conference ever held in this small country. The papers deal with policy issues and technical information on cropping, livestock, fisheries and forestry, and agricultural education.

Other new publications cover peanut breeding, nutrient management in tropical agriculture, weed control and feeds for aquaculture.

More than 10,000 hard copies of publications were distributed, of which 608 were sold to developed world customers, earning net income of $9,525. Complimentary copies were distributed on request to 1011 people and institutions involved in agriculture for development. The most popular hard copy titles were *The coconut odyssey*, *Nutrient disorders in plantations,* and *Working with mycorrhizas*, while the most frequently downloaded titles included several on biological control of pests, *Pig husbandry in New Guinea* and *Survey toolbox for aquatic diseases*.

The magazine *Partners in Research for Development* was redeveloped to combine the best features of the old-style *Partners* and corporate newsletter with a new look and feel. The former *ACIAR Newsletter* was discontinued after the 44th issue. Six of ACIAR's country offices published newsletters featuring ACIAR's activities in their country or region. The former *Postharvest Newsletter* was relaunched as the electronic news bulletin *Linking farmers with markets* (www.linkingfarmerswithmarkets.net).

ACIAR is a partner in AusAID's Virtual Colombo Plan program, which promotes opportunities for people in developing countries to access education, information and knowledge by using ICTs to support and accelerate international development as these technologies become more affordable and widespread. During the year ACIAR contributed to scoping of the agricultural section for phase 2 of the Australian

Development Gateway project (www.developmentgateway.com.au). Several new activities were supported that use Australian expertise and ICTs to improve communication between researchers and their beneficiaries, and to package information derived from agricultural research in ways that will be more accessible and relevant to end users. In one case scientists, extension and multimedia specialists from Australia, India and Vietnam met to scope the content of four multimedia CDs on controlling pests and diseases of groundnuts. In another activity, a project team successfully trialled the use of Microsoft NetMeeting and Windows Messenger technologies between Toowoomba in Australia and Sulawesi in Indonesia, with satisfactory video and audio linkages over a dial-up telephone line from a local farmhouse at the Indonesian end. Trials will continue, and are expected to increase the frequency of team interactions while reducing the need for travel.

Summaries of active ACIAR-funded projects have been published on our website since 1999. During 2003–04 annual project progress summaries were added, and summaries of the outcomes of projects completed over the past two years were prepared and published. These summaries are now being linked with other databases of information relevant to agricultural and rural development, including the CSIRO Global Development website, and the Australian Development Gateway.

Capacity building activities included training for John Allwright Fellows in written and oral communication for different audiences, and targeted communications training for ACIAR's country office staff.

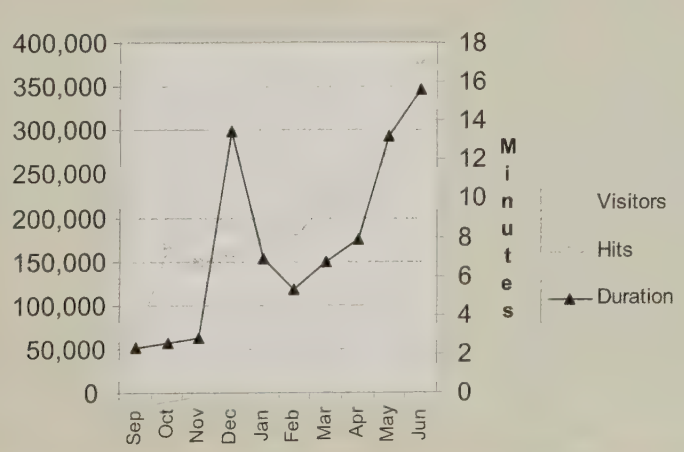
www.aciar.gov.au

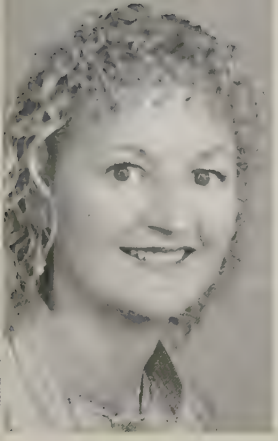
ACIAR redeveloped its website during the first half of 2003, and recorded statistics on the site from midway through September 2003.

The site is designed as a first stop gateway into ACIAR and its operations.

ACIAR's website is the main means of dissemination of its information and publications. Analysis of website visitor and download statistics shows that the average number of visitors per day increased. During the same period almost 75,000 full copies of research publications were downloaded.

This chart shows the number of unique (or individual) **visitors** to the site as well as the number of **hits**, both along the left hand axis. The average **duration** of each visitor's time spent on the site can be read along the right hand axis.





Dr Deborah Templeton, Manager of the Impact Assessment Unit

Measuring research impacts

AOP budgeted expenditure in 2003–04	$327,000
Actual expenditure in 2003–04	$439,026
Expenditure in 2002–03	$228,685
Expenditure in 2001–02	$333,000
Proportion of total ACIAR expenditure 2003–04	0.9%

Key performance indicators	Performance 2003–04
• Publish four to six assessments of the impacts of completed projects in 2003–04. A poverty reduction focus will be incorporated where possible.	Four assessments were published, with a further four assessments completed. A poverty reduction focus was incorporated.
• Develop a system to enable project leaders to complete impact statements for 14 large projects that were completed in 1999–2000.	The system has been developed with project leaders providing adoption statements.
• Complete a study on adoption of the results from a suite of animal health projects.	Impact assessments for Blue Tongue Disease (IAS 23) and Foot and Mouth Disease (IAS 21) completed and published.
• Review ACIAR's investment in a key IARC.	The review (in the form of an economic assessment) was completed for CIMMYT.

Position

The main aim of the Impact Assessment Unit (IAU) is to provide and analyse information on past project and expected project impacts. These impact assessments support the activities of the research areas of the Centre and enhance the Centre's public accountability, complementing the documentation and reporting of 'qualitative' project impacts. The main focus of the commissioned economic impact assessments remains measuring the dollar returns to agricultural research. Since 2002–03 much greater emphasis has been given to analysing impacts of projects on poverty reduction.

The Unit has a secondary aim of advancing methods associated with assessing research impacts, including building the capacity of ACIAR staff and project leaders to identify how agricultural research contributes to improved economic, social and environmental conditions in Australia and partner countries. During 2003–04 impact assessments which develop and/or implement 'cutting-edge' methods were commissioned. Workshops on achieving and measuring impact were also commissioned and conducted, by external consultants and the IAU Manager.

Mr Ho Van Chien, extension specialist in Vietnam, explains the concept of a community rodent trap barrier system

Achievements

Assessment of rodent control projects in Vietnam: Adoption and impact

Following the successful research results of two previous ACIAR-funded projects on management of rodent pests in Southeast Asia (AS1/1994/020 and AS1/1996/079), a four-year project, titled 'Managing rodents in rice-based farming systems' was commissioned. This focused on delivering

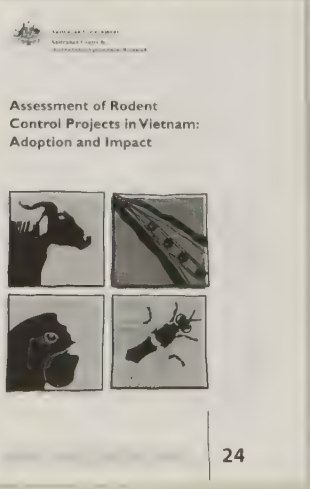
cost-effective, environment-friendly, benign rodent control technologies such as the community trap barrier systems (CTBS) and integrated rodent management at the village level. The ACIAR-funded project work was supported by an AusAID funded Capacity-Building for Agriculture and Rural Development (CARD) project (2000/024) aimed at enhancing Vietnam's capacity in rodent management in the Mekong Delta region using non-chemical methods. This two-year project ended in July 2002. ACIAR, in collaboration with World Vision Vietnam, also funded a program designed to facilitate farmer uptake of ACIAR project results in Binh Thuan Province.

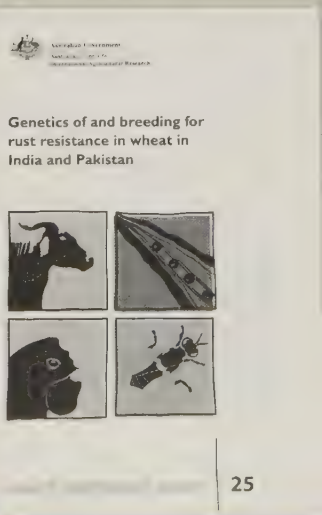
The results of an assessment of the farm-level impact of the rodent control projects in five provinces in Vietnam (Vinh Phuc, Binh Thuan, Bac Lieu, Soc Trang, and Tien Giang) showed that the benefits from investment in rodent control projects included reduced yield losses caused by rats, a lower rodent population in project areas, reduced use of toxic rodenticide, decreased use of plastic fence to protect the whole area, and decreased rodent control costs. When CTBS use is subsidised by either donor organisations or by the government, the average (farm-level) net present value for all provinces was A$1,565 per ha (VND 14,639,547) and the value for the average farm-level benefit–cost ratio was 22:1. This impact assessment was published in IAU's Impact Assessment Series (No. 24).

Genetics of and breeding for rust resistance in wheat in India and Pakistan

The economic benefits of the two related ACIAR-funded projects (CS1/1983/037 and CS1/1988/014) on the genetics and breeding for rust resistance in wheat were assessed. The key organisations involved in the projects were the University of Sydney, the Indian Agricultural Research Institute and the Pakistan Agricultural Research Council. The main objectives of the projects were to investigate and enhance the sources of rust resistance in wheat in India and Pakistan, and to provide training for Indian and Pakistani rust scientists at the National Wheat Rust Control Program (NWRCP) at the University of Sydney. The study has estimated the value of the training received in Australia by Indian and Pakistani scientists at $A2.2 million per year, with India receiving the majority of the benefits.

The present value of benefits, calculated over 30 years (A$57.2 million), is well in excess of the present value of the project costs ($A3.3 million), giving a benefit–cost ratio for the projects of around 17:1. This result indicates that the funds invested by ACIAR in the projects on rust resistance provided a high economic return on that investment. These results are sensitive to assumptions relating to the extent and timing of the impact on R&D capacity in India and Pakistan. Even with the least optimistic assumptions, however, the projects gave a benefit–cost ratio no lower than 8:1. This impact assessment was published in IAU's Impact Assessment Series (No. 25).





Impact assessment of ACIAR-funded projects on grain-market reform in China

An assessment of two projects (ANRE1/1992/028 and ADP/1997/021) funded by ACIAR to present theoretical and empirical arguments to demonstrate how China would benefit from efficiency gains from less government intervention in grain marketing was commissioned. The assessment found that, if the complete body of economics research underpinning these projects has brought forward policy reform from the end of 2004 by between 3 and 6 months, the present value of benefits is estimated at between A$40.3 million and A$88.6 million. Assuming that the cost of this total body of research is around A$13.5 million, the net present value for this body of research ranges from A$27 million to A$75 million, and the benefit:cost ratio is between 3:1 and 7:1.

On their own, the ACIAR-funded projects which formed a component of the total research are likely to advance the pace of reform less than the total body of economics research. If the ACIAR-funded projects alone bring forward policy reform from the end of 2004 by 1 month then the present value of the investment is A$12.7 million and, given the cost of the ACIAR-funded research is approximately A$2.7 million, the net present value for the ACIAR-funded projects is $10 million and the benefit–cost ratio is 5:1. This impact assessment was published in ACIAR's Impact Assessment Series (No. 26).

Acacia hybrids in Vietnam

The ACIAR-funded project 'Hybridisation and vegetative propagation of Australian tropical acacias' (FST/1986/030) aimed to develop methods for breeding highly productive artificial acacia hybrids and establish low-cost methods for mass vegetative propagation of hybrid clones. Although the research was done in Malaysia, Vietnam made extensive use of the techniques to develop a burgeoning plantation industry based on hybrid acacias, a clear case of 'spillover' benefits. The present value benefit of bringing forward the commercial release of acacia hybrids by four years in Vietnam is estimated to be A$152 million over the whole 30-year time horizon (1988 to 2018). This is a significant return on a relatively modest research investment of A$1.04 million. Thus, a high benefit–cost ratio of 145 and an internal rate of return (IRR) of 47 per cent are estimated. This significant return is the result of Acacia hybrids having been rapidly adopted on a commercial scale in Vietnam, and the sizeable yield advantage of the hybrids being almost double that of their parent species.

Acacia hybrid forestry has the potential to reduce poverty in those provinces where plantations are commercially viable. However, the extent to which acacia forestry will address poverty depends on the ownership structure of the plantations, the system of land allocation and the capacity of poor households to access capital, wood product markets and technology. Wealthier households are likely to benefit the most from plantation development. The poorest of the poor, even if they have access to land, generally cannot afford to invest in an activity that does not yield

a return for 3 to 5 years. However, poorer households may still benefit from the new job opportunities generated by plantations, including tree growing, harvesting, transport and processing activities.

Water and nitrogen management in wheat-maize production on the North China Plain

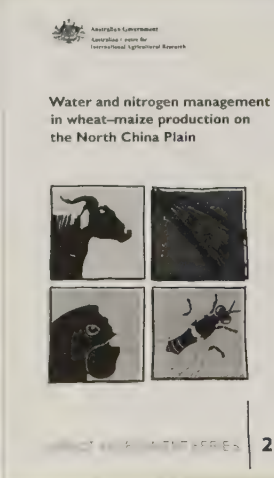
The ACIAR project, 'Water and nitrogen management to increase agricultural production and improve environmental quality', investigated the efficiency of traditional rates of nitrogen and water use in wheat–maize production on the North China Plain. In present value terms, the benefits of the project were A$219 million. They represent the economic benefits that accrue to farmers growing wheat and maize on selected areas of the North China Plain. The benefit–cost ratio is almost 77:1. A progressive project evaluation up to the end of 2003–04 assessed the net benefits at A$24.9 million. The progressive benefit–cost ratio is about 10:1. The project will have significant poverty reduction effects. For an average sized farm input costs fall by 12 to 18 per cent. Project benefits are equivalent to an increase in income of between A$50 and A$109 per year for each farm.

Impact assessment of research on the biology and management of coconut crabs on Vanuatu

In June 1985, ACIAR funded a three-year project on the growth and recruitment of the coconut crab *Birgus latro* populations on Vanuatu, followed by an AusAID (then AIDAB) funded project to resurvey crab stocks and develop initial management plans for two regions. Subsequently, ACIAR funded follow-on projects in 1993 to survey and develop a stock assessment guide and extension material on coconut crabs, in 2002 to survey current stocks and review management arrangements, and in 2003 to complete the stock assessment surveys by local staff, and to develop a comprehensive management plan for the Vanuatu coconut crab fishery. The suite of projects aimed to provide a scientific foundation for improved management of the Vanuatu coconut crab resource that would benefit the Ni-Vanuatu people.

The uptake of this research was delayed, due to a lack of government resources and the necessary time for stock renewal, resulting in a present value over a 30-year period estimated to be around A$1.4 million. The benefit–cost ratio is 2:1. If the duration of the analysis is extended to 50 years, these economic impact measures increase to a present value of A$3.2 million, resulting in a benefit:cost ratio of 5:1.

The primary beneficiaries of this suite of research projects have been poor rural households in remote parts of Vanuatu, who benefit from the considerably larger subsistence catch. The impact of cash incomes on poverty levels also is predicted to be significant for the estimated 600 plus crab-collecting households on Vanuatu. For example, a number of collecting households in Sanma Province reported cash earnings from commercial crab harvesting of A$2,000 to A$2,700 per household.


Water and nitrogen management in wheat–maize production on the North China Plain
28
Impact assessment of research on the biology and management of coconut crabs on Vanuatu
29

Impact of CIMMYT research on the Australian wheat industry

An assessment of the impact of CIMMYT's research on the Australian wheat industry demonstrated that the spillover benefits in terms of productivity improvements in Australian wheat helped to offset the research-induced fall in world wheat prices. CIMMYT's success in disseminating improved varieties and technologies to both developed and especially developing countries has helped to increase global wheat production. This has resulted in a lowering of world wheat prices, including the price paid for Australian-grown wheat, by 7.4 per cent. As a consequence of the price fall, over the period 1965 to 2020, the net loss in welfare to Australia is A$673 million. However, the position for Australia if there were no spillovers from CIMMYT research is a net loss of welfare of A$2,099 million. Thus, the results of the analysis shows that spillover benefits from CIMMYT to Australia lead to welfare benefits totalling A$1,425 million over that period.

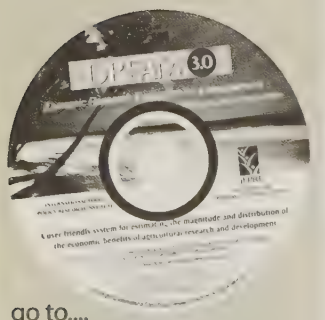
In terms of the average annual welfare, for the period since 1973, when spillovers from CIMMYT research were first received in Australia, the net welfare gains for Australia from the CIMMYT spillovers have averaged A$30 million per year. Without spillovers, CIMMYT would have reduced Australia's welfare by A$45 million per year over that time, while the spillovers mean that there is a net reduction of only A$14 million per year for Australia. This assessment will be published as a NSW Agriculture Economic Assessment Report.

Capacity-building workshops

A four-day research evaluation workshop was held in conjunction with the ACIAR training program in Nadi, Fiji, for project leaders in the Pacific Islands. The purpose of this workshop was to build the capacity of the attendees to evaluate the likely and actual impacts of agricultural research. At this workshop the participants were taught skills in the use of an evaluation framework to identify how research contributes to improved economic, social and environmental conditions. By including the evaluation framework in project development and delivery, the likelihood of greater impacts resulting from the project is increased. A demonstration of the DREAM model (a user-friendly tool for evaluating agricultural research and its potential impacts) was also given at the workshop.

Dr Garry Griffith from NSW Department of Primary Industries (DPI) was commissioned to deliver DREAM training workshops to ACIAR project leaders, team members and economists in NSW DPI and State Departments of Primary Industries and Agriculture. Workshops were held in Armidale in October 2003, Brisbane and Townsville in November 2003, Melbourne, Adelaide and Perth in early December 2003 and in Canberra and Sydney in May 2004. The feedback from the workshops has been very positive in terms of the usefulness of the DREAM model as a tool for estimating the returns from R&D and how it can be applied to relevant ACIAR projects.

A user-friendly tool for evaluating agricultural research

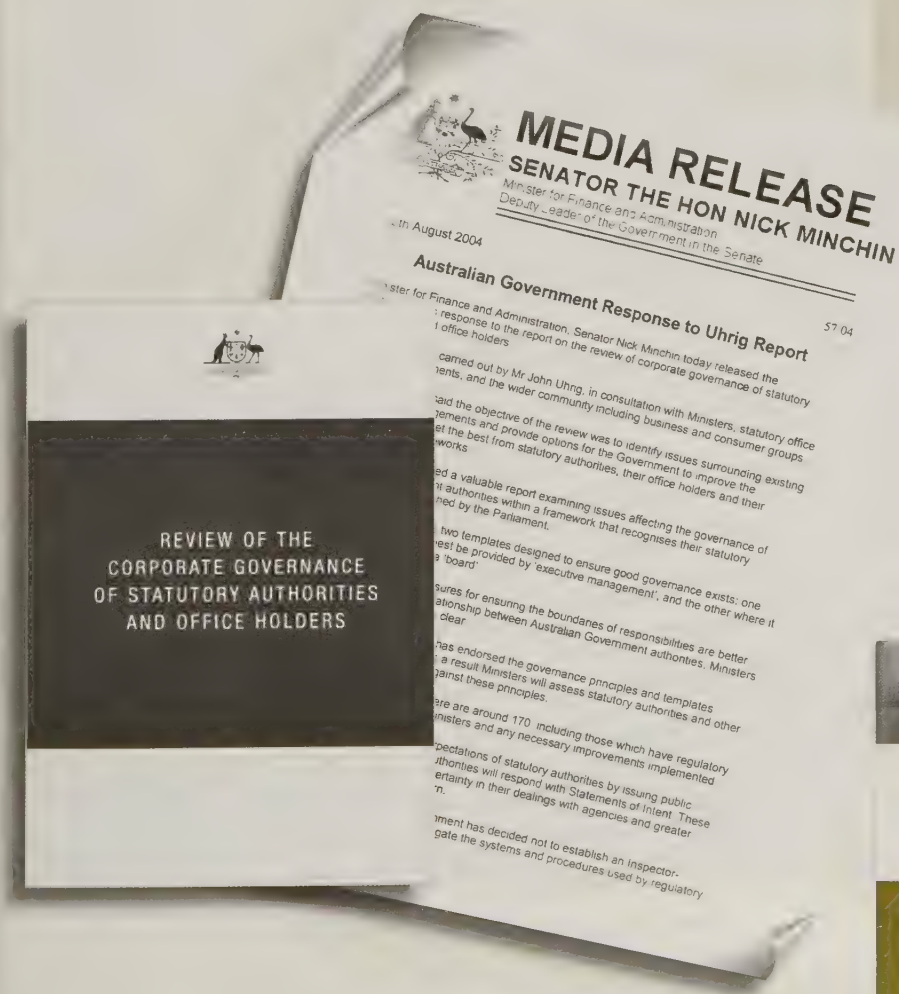


go to....
www.ifpri.org/dream.htm

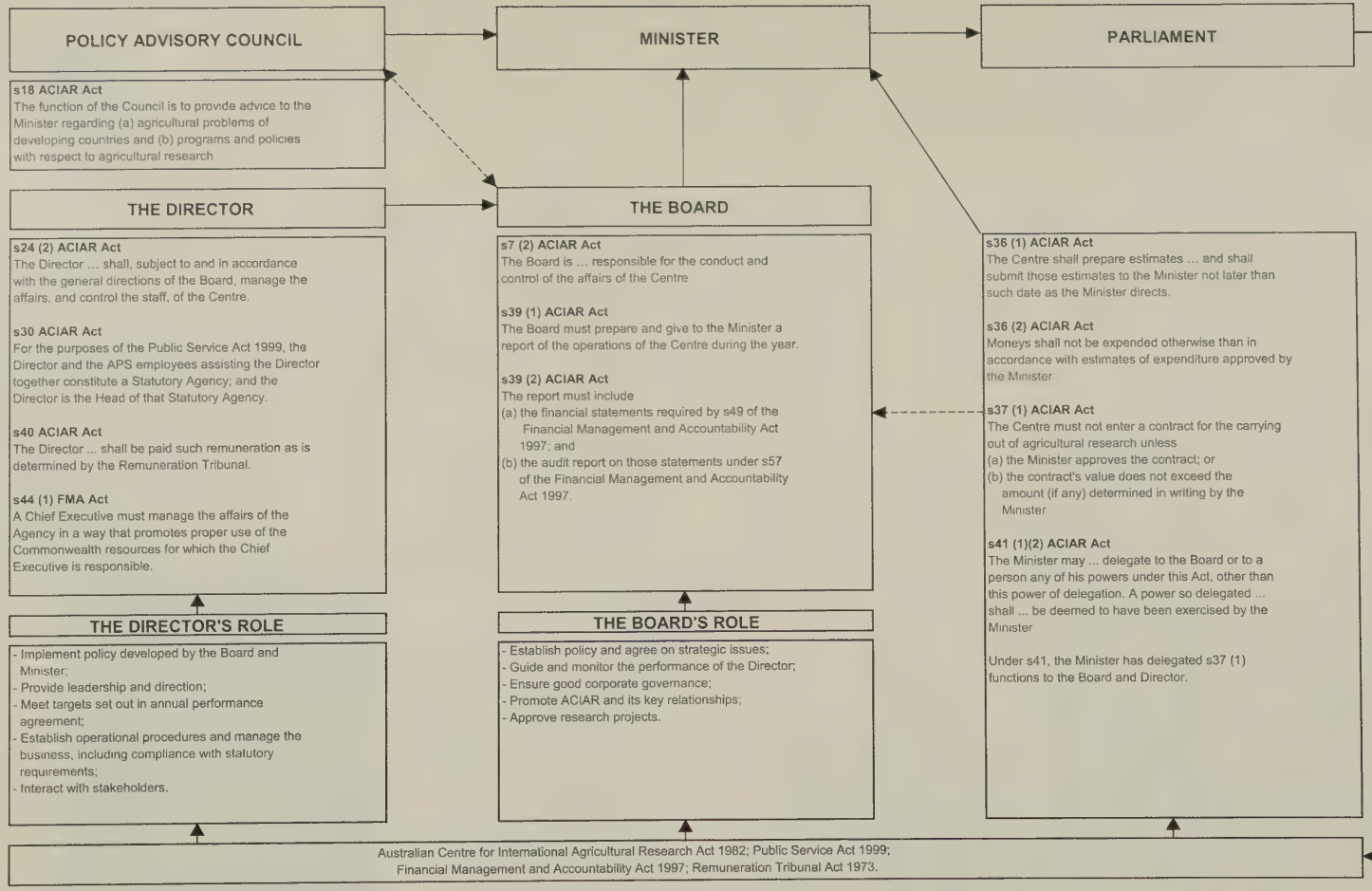
...estimates the magnitude and distribution of the economic benefits of agricultural research

Corporate governance

	Page
Accountability framework	92
Board of Management	93
Financial accountability and compliance	97
Risk management	98
The Director	101
The Policy Advisory Council	102



Accountability framework


POLICY ADVISORY COUNCIL
s18 ACIAR Act
The function of the Council is to provide advice to the Minister regarding (a) agricultural problems of developing countries and (b) programs and policies with respect to agricultural research
MINISTER
PARLIAMENT
THE DIRECTOR
s24 (2) ACIAR Act
The Director ... shall, subject to and in accordance with the general directions of the Board, manage the affairs, and control the staff, of the Centre.
s30 ACIAR Act
For the purposes of the Public Service Act 1999, the Director and the APS employees assisting the Director together constitute a Statutory Agency; and the Director is the Head of that Statutory Agency.
s40 ACIAR Act
The Director ... shall be paid such remuneration as is determined by the Remuneration Tribunal.
s44 (1) FMA Act
A Chief Executive must manage the affairs of the Agency in a way that promotes proper use of the Commonwealth resources for which the Chief Executive is responsible.
THE BOARD
s7 (2) ACIAR Act
The Board is ... responsible for the conduct and control of the affairs of the Centre
s39 (1) ACIAR Act
The Board must prepare and give to the Minister a report of the operations of the Centre during the year.
s39 (2) ACIAR Act
The report must include
(a) the financial statements required by s49 of the Financial Management and Accountability Act 1997; and
(b) the audit report on those statements under s57 of the Financial Management and Accountability Act 1997.
s36 (1) ACIAR Act
The Centre shall prepare estimates ... and shall submit those estimates to the Minister not later than such date as the Minister directs.
s36 (2) ACIAR Act
Moneys shall not be expended otherwise than in accordance with estimates of expenditure approved by the Minister
s37 (1) ACIAR Act
The Centre must not enter a contract for the carrying out of agricultural research unless
(a) the Minister approves the contract; or
(b) the contract's value does not exceed the amount (if any) determined in writing by the Minister
s41 (1)(2) ACIAR Act
The Minister may ... delegate to the Board or to a person any of his powers under this Act, other than this power of delegation. A power so delegated ... shall ... be deemed to have been exercised by the Minister
Under s41, the Minister has delegated s37 (1) functions to the Board and Director.
THE DIRECTOR'S ROLE
- Implement policy developed by the Board and Minister;
- Provide leadership and direction;
- Meet targets set out in annual performance agreement;
- Establish operational procedures and manage the business, including compliance with statutory requirements;
- Interact with stakeholders.
THE BOARD'S ROLE
- Establish policy and agree on strategic issues;
- Guide and monitor the performance of the Director;
- Ensure good corporate governance;
- Promote ACIAR and its key relationships;
- Approve research projects.
Australian Centre for International Agricultural Research Act 1982; Public Service Act 1999; Financial Management and Accountability Act 1997; Remuneration Tribunal Act 1973.

Board of Management

The ACIAR Board of Management is established under s7 of the ACIAR Act. The Board of Management is responsible for the overall corporate governance of ACIAR. In consultation with the Minister, the Board of Management sets the strategic directions of the Centre. Responsibility for implementing and managing these directions rests with the Director and senior management. The Board of Management is committed to achieving the highest possible standards of corporate governance, emphasising performance-oriented management practices and accountability to Parliament and the Minister. The Board's role is to:

- establish policy and agree on high-level strategic issues
- advise the Minister in relation to appointment of the Director, and guide and monitor the performance of the Director
- ensure good corporate governance
- promote ACIAR and its key relationships
- approve research projects.

In fulfilling these roles the Board of Management monitors corporate and program performance and provides feedback on program development. It is advised of project proposals during the early stages of their development, and approves research projects in the bilateral and multilateral programs (subject to subsequent endorsement by the Minister). The Board monitors and appraises the Director's performance and ensures that operational plans and control processes are in place and working.

Board composition

The Board comprises five members:

1 the Chair, who is also the President of the Policy Advisory Council (see later section on the Policy Advisory Council)
2 the Director (CEO) of ACIAR
3 three part-time members of the Policy Advisory Council.

In recognition of the strong linkages between ACIAR and AusAID, the Director General of AusAID is invited to attend Board of Management meetings. Details of Board members are on page 94.

Board meetings

Board of Management meetings are scheduled approximately quarterly, to enable the Board to fulfil its governance and statutory responsibilities.

The Board held four meetings in 2003–04, as follows:

91st meeting	6–11 July 2003	Papua New Guinea
92nd meeting	9 September 2003	Canberra
93rd and 94th meetings*	11 February 2004	Canberra
95th meeting	5 May 2004	Canberra

** The 93rd meeting was scheduled to be held on 3 December 2003 and was subsequently combined with the 94th meeting.*

Professor Beth Woods, OAM

Chair

Professor Woods is the foundation Professor of Agribusiness at the University of Queensland's Gatton campus.

She has a background in agricultural extension and research management in Queensland, specialising in field crops and horticulture.

She was formerly a member of the CSIRO Board and Chair of the Rural Industries Research and Development Corporation.

Re-appointed 1 June 2003 for three years.

Professor Woods resigned as Chair on 19 July 2004, to take up a position at Queensland Department of Primary Industries and Fisheries.

Dr Meryl Williams

Chair*

Executive Officer of the Future Harvest Alliance Office, Chair of the FAO Advisory Committee on Fisheries Research, Director General of WorldFish Center from 1994 to 2004, a world leader in fisheries research and research for development.

**Appointed 5 August 2004 for three years.*

Dr John Williams

Member

Former Chief CSIRO Land and Water, and currently Chief Scientist for NSW Department of Infrastructure Planning and Natural Resources. One of Australia's leading experts on sustainable agricultural practices and the nature of agriculture as part of natural ecosystems.

Appointed 25 July 2002 for three years.

Mr Peter Corish

Member

President of the National Farmers' Federation, chair of the Cairns Group Farm Leaders, and a member of the International Federation of Agricultural Producers Executive.

He has previously held the position of Chairman of Cotton Australia Limited and Chairman of the Australian Cotton Industry Council, and has served on the NFF Executive Committee since 1999.

Appointed 1 December 2003 for three years.

Mr Michael Taylor

Member

Secretary, Federal Department of Agriculture, Fisheries and Forestry; former Secretary, Department of Natural Resources and the Environment, Victoria.

Re-appointed 1 December 2003 for two years.

Mr Peter Core

Director

Director of ACIAR since 31 July 2002. Former Managing Director of Rural Industries Research and Development Corporation and held numerous senior positions in the Australian Public Service.

Appointed 31 July 2002 for five years.

High level consultations with ACIAR's stakeholders include holding one meeting each year in a partner country or countries. The Board of Management visited Papua New Guinea in July 2003 with the objective of obtaining a closer understanding of the country's agricultural research and development needs. The Board's visit provides an opportunity to meet with people from across the spectrum of Papua New Guinea's agriculture, and to learn more about research and development policies and priorities, current research and development initiatives, and progress being achieved within particular ACIAR projects.

Board performance

Major milestones for the Board of Management in 2003–04 included:

- finalisation of a performance agreement with the Director for 2003–04 and monitoring of his performance for that period
- development of the Annual Operational Plan for 2004–05, which seeks to codify program priorities for partner countries and provide enhanced operational transparency
- approval of 26 medium and 21 large projects for commencement.

Conflict of interest

The composition of Board membership representing stakeholder organisations has the potential to give rise to a conflict of interest in some decisions. Project approval with institutions from which Board members are drawn is the most notable example. Board members are required to disclose any interests that may affect their position, and where a conflict exists, the relevant Board member(s) must withdraw from a decision on that particular matter. The Board Minutes record potential conflicts and are available for consideration by the Centre's Auditors.

Ministerial delegations, instruments and directions

Under s37 of the ACIAR Act the Board of Management has delegated authority from the Minister to approve contracts for the carrying out of agricultural research (ACIAR's research projects). The Director has delegated authority from the Minister to approve research projects and variations to projects up to $165,000 and to enter into all contracts for projects approved by the Board of Management. The Board of Management reports to the Minister on the exercise of this delegation after every Board meeting. This enables the Minister, in effect, to review the proposed project-specific decisions to ensure consistency with broader portfolio considerations.

The Minister may give directions in writing to the Board of Management with respect to the exercise of its powers or the performance of its functions. This includes directions with respect to the commissioning of particular research.

In 2003–04 there were no directions given, though the Minister indicated his desire for ACIAR to:

- maintain a strong program in PNG and the Pacific

Heather Crompton, Policy Secretariat Manager

Stephanie Adler, support officer for the Board

- reduce the program with India and China; and
- develop small programs in Iraq and the Tibet Autonomous Region of China.

Board costs

The direct cost of Board of Management operations during 2003–04 was $44,017. This included fees, travel and other meeting expenses. The Director's salary and other management costs are not included. The comparative figure for 2002–03 was $68,530.

Board remuneration

Member fees are set by the Remuneration Tribunal. Daily fees as at 30 June 2004 were $479 for the Chair and $427 for Members (other than the Director). The Chair declined to receive a daily fee. Administrative costs in support of the Chair's ACIAR activity were invoiced to ACIAR by the University of Queensland. The cost of these services in 2003–04 inclusive of GST was $20,000.

The Director's remuneration is subject to the relevant determinations of the Remuneration Tribunal. These provisions enable the Board of Management to determine the total remuneration, superannuation salary and performance pay components of the remuneration package, within the parameters of Remuneration Tribunal Determination 1999/15.

The Director's remuneration package at 30 June 2004 consisted of:

- base salary of $161,082
- PSS superannuation with an employer contribution of 12.2 per cent of base salary
- annual performance bonus of up to a maximum of $32,326 (for 2003–04 $17,240 bonus was paid)
- other negotiable benefits, consisting of car and spouse travel.

Post 30 June developments

The Remuneration Tribunal reviewed the annual fee for the ACIAR Board of Management Chair and Council President, in light of the two roles being filled by the one person. (The Chair of the ACIAR Board has traditionally filled the role of the President of the Policy Advisory Council.)

The Tribunal has now determined that annual remuneration for this office should be set at $30,110 per annum while the one person fills both roles. Travel is set at the Tier 2 level.

A formal determination setting out the new rate for the Chair, to come into effect from 20 July 2004, has been issued.

Higher daily sitting fees for members, set by the Remuneration Tribunal, came into effect from 1 July 2004. These daily fees increased from $427 to $448 for members (other than the Director).

Financial accountability and compliance

"Compliance is like cleaning your teeth in the morning, its something we all need to do, but it's not the reason we get up."

Source: AIDC Company Director Course Participant.

As a statutory authority ACIAR is subject to the policy guidelines determined by government from time to time regarding accountability, reporting, review and general operations and is accountable through the Minister to the Parliament. It is also subject to government financial and accounting policies and procedures. Staff members are employed under the Public Service Act. Within these constraints, the Centre has the power to do all things it considers appropriate for the performance of statutory functions.

ACIAR derives its financial authority from the ACIAR Act. Under the ACIAR Act the Centre, as a body corporate, may acquire, hold and dispose of real and personal property, and may sue and be sued in its corporate name. Financial powers and duties derive from the *Financial Management and Accountability Act 1997* (FMA Act) and subordinate Regulations and Orders.

The Centre follows accounting practices in accordance with the FMA Act, other related legislation and recognised accounting standards. The Annual Financial Statements, presented in accrual accounting format on pages 108–137 of this report, along with all financial transactions made by the Centre, are subject to Australian National Audit Office (ANAO) examination.

Insurances

Comcover as the manager of the Commonwealth's insurable risks provides corporate insurance for the Centre. Comcover's coverage includes general and products liability, professional indemnity, directors' and officers' liability, property loss and damage, personal accident and official overseas travel. As part of our renewal of insurance cover for 2003–04 ACIAR closely examined our excesses and level of cover, resulting in an overall reduction in the premium paid. The cost of insurance for 2003–04 was $138,804 (excluding GST). The premium paid for 2002–03 was $176,380.

Liability and professional indemnity insurances were not required to be invoked in 2003–04.

Risk management

ACIAR has specific programs to manage various aspects of risk including purchase of appropriate insurance cover; an occupational health and safety committee and program; and fire safety and emergency procedures.

ACIAR has in place a risk management policy, including an overall risk management plan comprising a series of more specific risk assessments and risk treatment plans. Significant business risks are addressed in these risk assessments and risk treatment plans, all of which are reviewed and updated annually. They include, at the highest level, the risks associated with the critical success factors of ACIAR's Corporate Plan 2001–06.

The ACIAR Audit Committee considers each annual update with a rolling three-year program of internal audits developed directly from these risk assessments. Those activities assessed as carrying the highest risk are audited during the three-year cycle wherever it is likely that an internal audit will value-add to the management and treatment of such issues. This program of internal audits is considered in outline every three years and the annual program is considered in greater detail.

Every second year, in accordance with the *Commonwealth Fraud Control Guidelines 2002*, a fraud-specific risk assessment is carried out and the fraud control plan is reviewed and updated. The last assessment and redrafting of the plan was held in 2002–03, with the next due in 2004–05.

During 2003–04 ACIAR fulfilled its annual reporting requirements on fraud control to the Attorney-General's Department and the ANAO.

Certification is provided that ACIAR has prepared fraud risk assessments and fraud control plans, and has in place appropriate fraud prevention, detection, investigations, reporting and data collection procedures and processes that meet the specific needs of the agency and comply with the *Commonwealth Fraud Control Guidelines 2002*.

All project proposals are assessed by senior ACIAR staff and the Board of Management against various risks, such as capacity and expertise issues; duplication of effort; non-adoption of results; intellectual property concerns; and negative environmental outcomes.

Audit Committee

ACIAR's Audit Committee is established in accordance with s46 of the *Financial Management and Accountability Act 1997*. The Committee promotes and facilitates communication between the centre's auditors (both internal and external) and management. In March 2004 the Committee revised its charter which was subsequently supported by the Board of Management at its May 2004 meeting. The Committee has the objectives of:

- providing advice to the Director and Board of Management that ACIAR's control framework is in place and working effectively
- ensuring the objectivity and reliability of externally published financial information

- assuring the Director and Board of Management that adequate systems are in place to ensure that ACIAR complies with all legislative and other obligations.

In fulfilling its corporate governance responsibilities and overall accountability for the Centre's operations, the Board of Management provides advice on each three-year audit program, and provides general advice on arrangements for the Audit Committee and on audit matters arising from the Committee's deliberations.

Three Audit Committee meetings were held in 2003–04. Audit Committee membership and attendance during the year were as follows:

Member		Meetings attended
Mr G Lillicrap	Chair (ceased 31.12.03)	1
Mr L Early	Chair (commenced 1.1.04)	2
Ms L Atkinson	External Member (commenced 1.1.04)	2
Mr M Brown	Centre Deputy Director	3
Dr R Trewin	Centre Program Manager	1
Dr D Templeton	Centre Unit Manager	2
Mrs H Crompton	Centre Program Manager (alternate)	1
Mr B Smith	Centre Program Manager (alternate)	1

Audit program 2004–05

The following audit program for 2004–05 was agreed by the Audit Committee on 17 March 2004:

- Q1: IT Security: follow-up audit (5 days)
- Q2: Financial procedures – including credit cards and payroll (12 days)
- Q3: Competitive tendering and contracting (10 days)
- Q4: Review of audit actions (5 days)

The Committee noted the following changes from the three-year plan:

- IT data integrity audit is to be put on hold. Managers are to provide feedback on any concerns they may have that may require an audit.
- Compliance with *EPBC Act* and other legislation is to be put on hold until a presentation by management to the Audit Committee is given on what is being done to comply with legislation (see Appendix 7). If this audit is deleted then consideration will be given to extending the time and/or number of other audits.
- The Planning Alignment audit to be reconsidered in the next three-year audit plan. Small sampling study of travel acquittals (starting 2003–04) and credit card usage (starting 2004–05) to take place in alternate years.

The Audit Committee Chair now attends two Board meetings to:

- present an updated, annual Audit Plan for endorsement
- present the audited Financial Statements for Board sign-off.

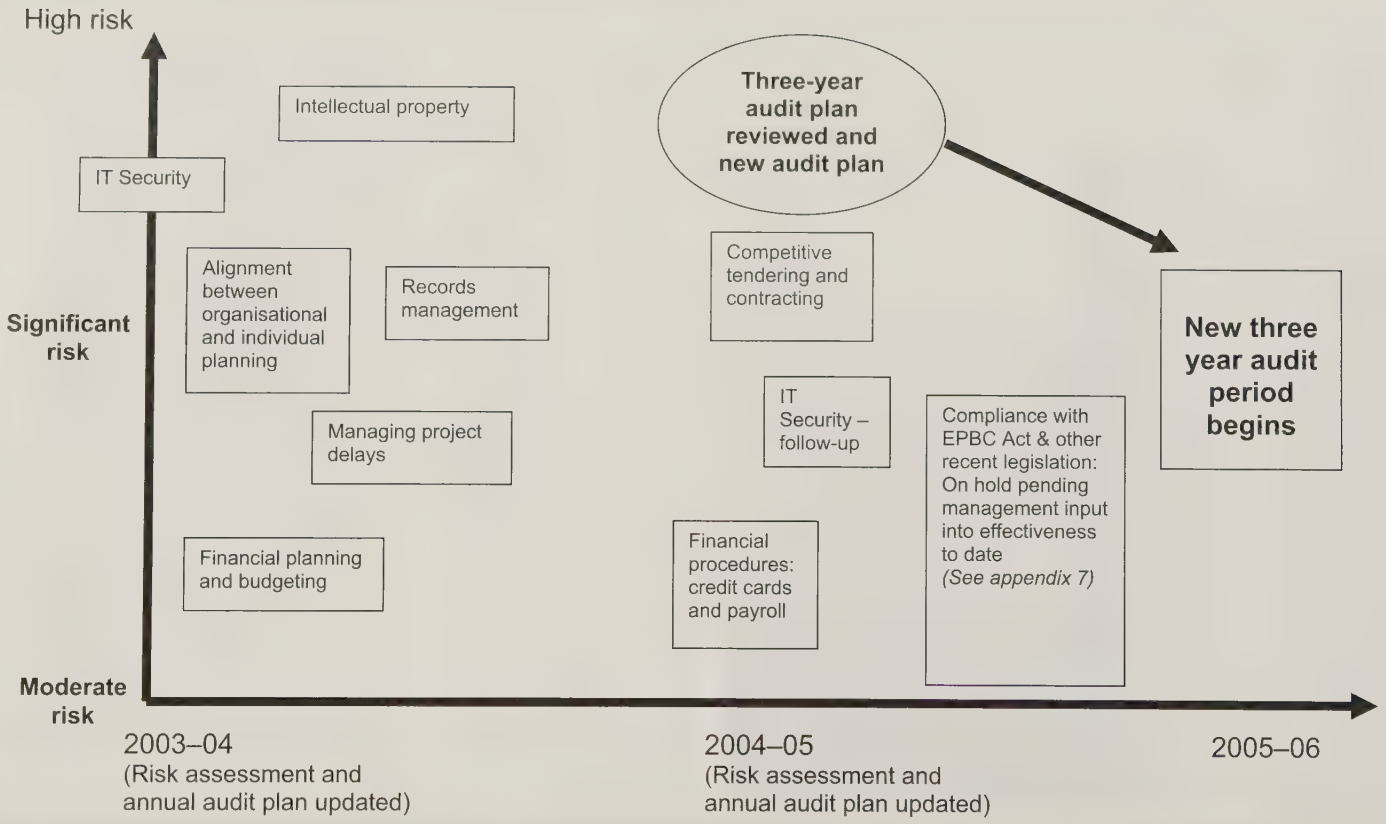
ACIAR Management also presents an audit report to the Board each meeting.

The Audit Chair is an external appointee and each Committee meeting is supported by advisers from our external auditors (ANAO), internal auditors (Acumen Alliance) and the Centre's Finance Manager.

Acumen Alliance is contracted to undertake various internal audit reviews to support the Committee. Internal audit reviews conducted in 2003–04 were:

- Projects Impacts Review*
- IT Security Review*
- Balance Sheet Management
- Intellectual Property†
- Project Development and Approval Timelines†
- Travel Health
- Records Management†
- Travel Acquittals Review

** Final audit report received in 2003–04; audit fieldwork conducted in 2002–03.*
† Audit fieldwork completed in 2003–04; final report received after 30 June 2004.


High risk
Significant risk
Moderate risk
Intellectual property
IT Security
Alignment between organisational and individual planning
Records management
Managing project delays
Financial planning and budgeting
Three-year audit plan reviewed and new audit plan
Competitive tendering and contracting
IT Security – follow-up
Financial procedures: credit cards and payroll
Compliance with EPBC Act & other recent legislation: On hold pending management input into effectiveness to date
(See appendix 7)
New three year audit period begins
2003–04
(Risk assessment and annual audit plan updated)
2004–05
(Risk assessment and annual audit plan updated)
2005–06

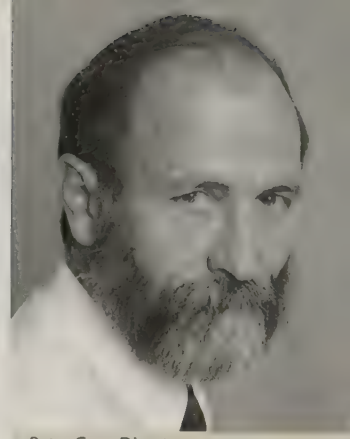
The Director

Section 24 of the ACIAR Act establishes the office of Director as the Chief Executive Officer of the Centre. Subject to, and in accordance with, the general directions of the Board, the Director manages the affairs, and controls the staff, of the Centre. Specifically, the Director's functions are to:

- develop strategic and operational plans for presentation to, and approval by, the Board of Management
- ensure that these plans and their component parts are implemented
- ensure the Board of Management is provided with relevant and timely decision support information
- ensure the Board of Management is properly informed about evolving key issues and alternatives for dealing with them
- manage the operational functions of the Centre consistent with its strategic and operational plan
- provide Centre staff with strong and empowering leadership to enhance the motivation, focus and satisfaction they derive from their contribution to the Centre
- nurture and enhance research alliances and represent and promote the Centre at forums and workshops
- maximise the adoption of research outputs.

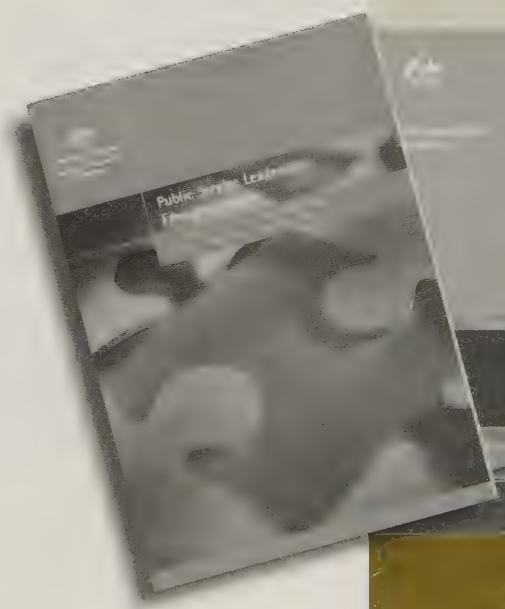
The Director is appointed by the Governor-General for a term of up to seven years. The office is subject to the determinations of the Remuneration Tribunal. The Tribunal has determined the Director to be an officer in the Principal Executive Officer (PEO) structure, at PEO Band C. The Board of Management is the identified Employing Body for remuneration purposes.

The current Director, Mr Peter Core, began a five-year term on 31 July 2002.



Peter Core, Director

Melina Tensen, Executive Assistant to the Director



Policy Advisory Council members during their annual meeting at Canberra, Australia, March 24, 2004

The Policy Advisory Council

Section 17 of the ACIAR Act establishes the Policy Advisory Council and its function of providing advice to the Minister regarding:

(a) agricultural problems of developing countries

(b) programs and policies with respect to agricultural research for either or both of the following purposes

(i) identifying agricultural problems of developing countries

(ii) finding solutions to agricultural problems of developing countries.

The role of the Council utilises stakeholder knowledge to provide a valuable overview by advising the Minister, the Board of Management and the Centre on matters including:

- national and regional development constraints;
- opportunities for research and development collaboration;
- national and regional research priorities, particularly those of ACIAR's partner countries;
- the matching of Australian expertise (Australia's competitive advantage) with these priorities;
- modes of operation for ACIAR; and
- sources of national and international expertise.

Council meeting

The Council holds one meeting annually, in Australia, over several days to discuss areas related to its role and functions. During 2003–04, it met in Canberra from 23 to 26 March 2004, which included discussions with the Minister.

At its meeting, the Council gave priority consideration to:

- research priorities as set out in a draft of the Centre's 2004–05 Annual Operational Plan;
- a presentation from AusAID on emerging issues and trends in Australia's aid program;
- presentations on topics of mutual interest including biosecurity, water catchment challenges and trade policy; and
- the status of research and development and current priorities in the countries represented on the Council. This standing item provides a unique opportunity for the Council members, individually and collectively, to discuss and present perspectives from their countries' R&D priorities. These discussions form a key input to ACIAR's planning processes and also, by bringing together policymakers from a range of countries in the Asia-Pacific region, has the potential to highlight regional needs, opportunities and complementarities, including bilateral cooperation between those countries themselves.

Sir Anthony Siaguru

Sir Anthony Siaguru KBE died in April 2004 after a long battle with cancer. Sir Anthony served on the ACIAR Policy Advisory Council from May 2000. One of the first groups of lawyers to graduate from the University of Papua New Guinea in 1971, Sir Anthony became the first head of the Foreign Service of his newly independent country in 1975. He entered politics in 1982, serving as minister before losing office at the 1987 election. In 1990 he was elected to a five-year term as Deputy Secretary General of the Commonwealth. In recent years he was a dedicated campaigner for improved governance and fighting corruption.

During 2003–04, the direct costs of the Policy Advisory Council were $50,554. The comparable figure for 2002–03 was $66,172.

Council membership at June 2004

Member	Term of appointment	Meeting
Professor Elizabeth J **Woods** OAM Professor of Agribusiness School of Natural and Rural Systems Management University of Queensland Gatton, QLD	President 1/6/00–31/5/03 1/6/03–31/5/06	Yes
Dr Joko **Budianto** Director General Agency for Agricultural Research and Development Jakarta INDONESIA	Appointed member 19/11/1998– 18/11/2001 1/3/2002–28/2/2005	Yes
Mr Peter **Core** Director ACIAR Canberra ACT	Ex officio member [31/7/2002–30/7/2007]	Yes
Mr Peter **Corish** President National Farmers' Federation	Appointed member 1/12/2003–30/11/2006	No
Mr Bruce **Davis** Director General AusAID Canberra ACT	Ex officio member	Yes (nominee)
Dr Patricio **Faylon** Executive Director Philippine Council for Agriculture, Forestry and Natural Resources Research and Development Los Banos PHILIPPINES	Appointed member 10/3/2003–9/3/2005	Yes
Mr Jim **Hallion** Chief Executive Department of Primary Industries and Resources SA Adelaide SA	Appointed member 1/3/2004–28/2/2007	Yes
Mr **Jia** Jingdun Deputy Director General Ministry of Science and Technology Beijing CHINA	Appointed member 10/3/2003–9/3/2006	Yes
Dr **Nguyen** Van Bo Director General Department of Science and Technology, Ministry of Agriculture and Rural Development Hanoi VIETNAM	Appointed member 1/3/2004–28/2/2007	Yes
Dr Mangala **Rai** Secretary Department of Agricultural Research and Education, and Director General Indian Council of Agricultural Research New Delhi INDIA	Appointed member 10/3/2003–9/3/2006	Yes
Mr Michael J **Taylor** Secretary Department of Agriculture, Fisheries and Forestry Canberra ACT	Appointed member 1/11/1997–31/10/2000 1/11/2000–31/10/2003 1/12/2003–30/11/2005	Yes
Dr John **Williams** Fellow CSIRO Land and Water Canberra ACT	Appointed member 16/7/2002–30/6/2005	No

The Council is limited to 14 members, comprising a President (the Chair of the Board of Management), ACIAR's Director, the Director General of AusAID or his nominee, and not fewer than nine nor more than 11 other members appointed by the Minister for Foreign Affairs. Members, appointed from stakeholder organisations in Australia and partner countries, bring a range of agricultural and development experience. The Minister is required, under the Act, to ensure that a substantial number of the members of the Council are residents of countries other than Australia, and to have regard for the knowledge of appointees concerning the agricultural problems of developing countries or their experience in organising or conducting agricultural research.

Membership of the Policy Advisory Council at the time of its meeting in Canberra on 23–26 March 2004, and attendance, is set out in the accompanying table. The Policy Advisory Council meeting was also attended by Mrs Suliana Siwatibau, from Fiji, as an observer.

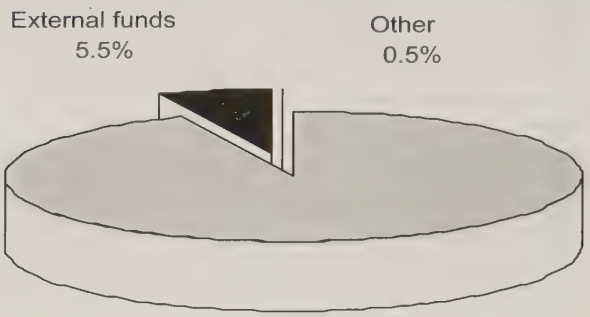
Paul Tyrrell, Chief Finance Officer

Chief Finance Officer's review

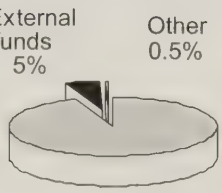
Revenue

ACIAR's funding is mainly provided through Commonwealth appropriation. Some external funding is available, such as from AusAID and GRDC for projects, and a small amount of revenue is generated through the sale of publications. ACIAR has maintained its level of appropriation, in real terms. Other revenue and external funding fluctuates from year to year.

ACIAR revenue 2003–04



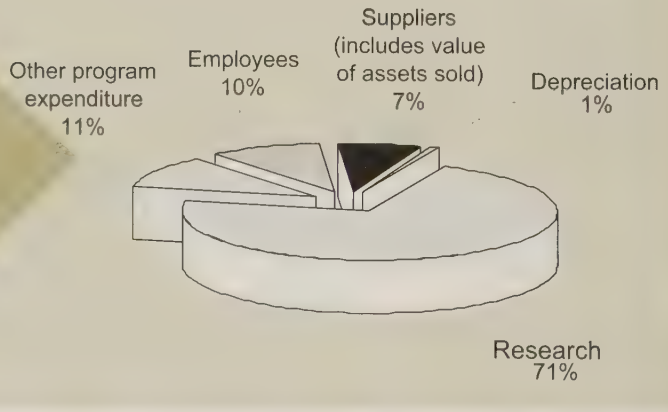
ACIAR revenue 2002–03



Expenditure

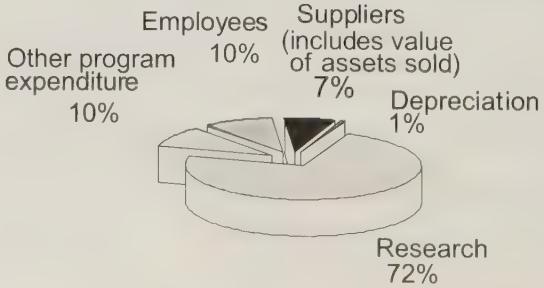
Approximately 82% of ACIAR's expenditure is on bilateral and multilateral research, education and training of researchers, publications and measuring project impacts (shown as 'other program expenditure'). Corporate costs of about 18% have remained constant over recent years.

ACIAR expenditure 2003–04

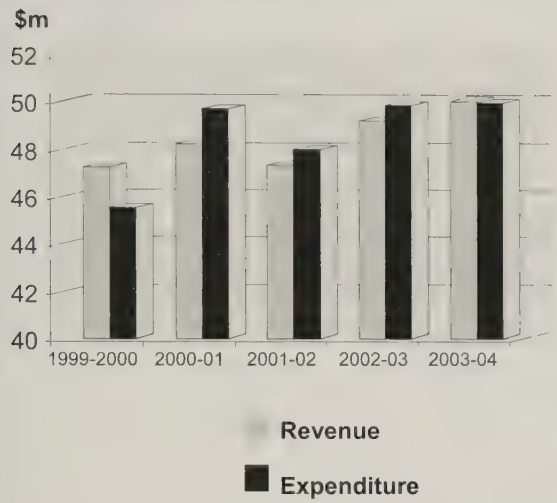


Expenditure has changed little from 2002–03.

ACIAR expenditure 2002–03



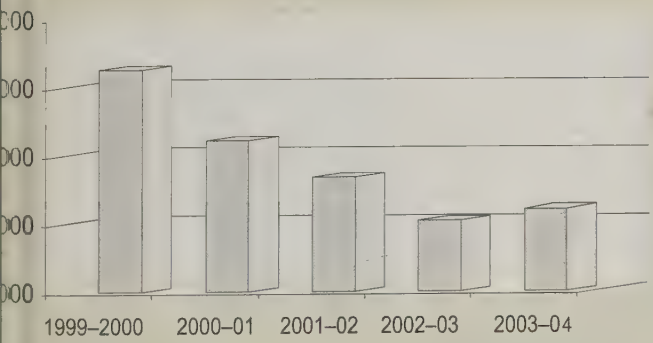
Revenue and expenditure



Financial performance surpluses/ (deficits)

In 1999–2000 ACIAR had a surplus of $1.685m, the result of delays in project start dates. ACIAR has refined its budgeting strategy to cater for such delays and has incurred operating deficits to achieve a more optimal level of cash and equity. ACIAR now operates on a balanced budget and for 2003–04 achieved a small surplus of $78,671.

Current ratio
(Current assets / current liabilities)



Balance sheet and financial position

ACIAR now has achieved an optimal financial position with an appropriate level of cash and equity. ACIAR is focusing on better balance sheet management. Our current ratio closely reflects this approach and is being maintained at an optimal level. The Centre will continue to operate a balanced budget to maintain this position.

Financial statements

	Page
Independent Audit report	107
Statement by Director and Chief Finance Officer	108
Statement of financial performance	109
Statement of financial position	110
Statement of cash flows	111
Schedule of commitments	112
Schedule of contingencies	113
Notes to and forming part of the financial statements	114

The Board noted:

(a) the draft financial statements for 2003–04 that were considered by the ACIAR Audit Committee on 20 August 2004. ***Decision 96/25***

(b) the management representation letter to Ernst and Young. ***Decision 96/26***

25 August 2004

Paul Tyrrell

Gloria Radosavljevic

ACIAR's finance team

Henry Lee

Frances McPherson

Australian National
Audit Office

INDEPENDENT AUDIT REPORT

To the Minister for Foreign Affairs

Scope

The financial statements comprise

- Statement by the Director and Chief Finance Officer;
- Statements of Financial Performance, Financial Position and Cash Flows;
- Schedules of Commitments and Contingencies; and
- Notes to and forming part of the Financial Statements

of the Australian Centre for International Agricultural Research for the year ended 30 June 2004

The Director is responsible for the preparation and true and fair presentation of the financial statements in accordance with the Finance Minister's Orders. This includes responsibility for the maintenance of adequate accounting records and internal controls that are designed to prevent and detect fraud and error, and for the accounting policies and accounting estimates inherent in the financial statements.

Audit approach

I have conducted an independent audit of the financial statements in order to express an opinion on them to you. My audit has been conducted in accordance with the Australian National Audit Office Auditing Standards, which incorporate the Australian Auditing and Assurance Standards, in order to provide reasonable assurance as to whether the financial statements are free of material misstatement. The nature of an audit is influenced by factors such as the use of professional judgement, selective testing, the inherent limitations of internal control, and the availability of persuasive, rather than conclusive, evidence. Therefore, an audit cannot guarantee that all material misstatements have been detected.

While the effectiveness of management's internal controls over financial reporting was considered when determining the nature and extent of audit procedures, the audit was not designed to provide assurance on internal controls.

I performed procedures to assess whether, in all material respects, the financial statements present fairly, in accordance with the Finance Minister's Orders made under the *Financial Management and Accountability Act 1997*, Accounting Standards and other mandatory financial reporting requirements in Australia, a view which is consistent with my understanding of the Australian Centre for International Agricultural Research's financial position, and of its performance as represented by the statements of financial performance and cash flows.

The audit opinion is formed on the basis of these procedures, which included:

- examining, on a test basis, information to provide evidence supporting the amounts and disclosures in the financial statements; and
- assessing the appropriateness of the accounting policies and disclosures used, and the reasonableness of significant accounting estimates made by the Director.

Independence

In conducting the audit, I have followed the independence requirements of the Australian National Audit Office, which incorporate Australian professional ethical pronouncements.

Audit Opinion

In my opinion, the financial statements:

(i) have been prepared in accordance with the Finance Minister's Orders made under the *Financial Management and Accountability Act 1997* and applicable Accounting Standards, and

(ii) give a true and fair view, of the matters required by applicable Accounting Standards and other mandatory professional reporting requirements in Australia, and the Finance Minister's Orders, of the financial position of the Australian Centre for International Agricultural Research as at 30 June 2004, and of its performance and cash flows for the year then ended.

Australian National Audit Office

Willie Tan
Senior Director

Delegate of the Auditor-General
Canberra

26 August 2004

Statement by Director and Chief Finance Officer

AUSTRALIAN CENTRE FOR INTERNATIONAL AGRICULTURAL RESEARCH
STATEMENT BY DIRECTOR AND CHIEF FINANCE OFFICER

In our opinion, the attached financial statements for the year ended 30 June 2004 are based on properly maintained financial records and give a true and fair view of the matters required by the Finance Minister's Orders made under the *Financial Management and Accountability Act 1997*.

Signed Peter Core

Peter Core
Director

26 August 2004

Signed P K Tyrrell

Paul Tyrrell
Chief Finance Officer

26 August 2004

AUSTRALIAN CENTRE FOR INTERNATIONAL AGRICULTURAL RESEARCH
STATEMENT OF FINANCIAL PERFORMANCE
for the year ended 30 June 2004

	Notes	2004 $	2003 $
Revenues from ordinary activities			
Revenues from Government	4A	**46,852,000**	46,298,000
Goods and services	4B	**18,522**	25,676
Interest	4C	**1,248**	37,549
Revenue from sale of assets	4D	**1,890**	200
External funds revenue	4E	**3,183,556**	2,703,340
Other revenues		**16,528**	137,280
Revenues from ordinary activities		**50,073,744**	49,202,045
Expenses from ordinary activities			
Administration			
Employees	5A	**4,929,832**	4,826,528
Suppliers	5B	**3,574,385**	3,527,870
Depreciation and amortisation	5C	**324,230**	272,147
Value of assets sold	4D	**2,861**	10,020
Program expenditure			
Grants	6A	**35,696,716**	36,391,306
Other program expenditure	6B	**5,467,049**	4,872,883
Expenses from ordinary activities		**49,995,073**	49,900,754
Net surplus / (deficit) from ordinary activities		**78,671**	(698,709)
Net surplus / (deficit)		**78,671**	(698,709)
Total revenues, expenses and valuation adjustments recognised directly in equity		**-**	-
Total changes in equity other than those resulting from transactions with the Australian Government as owner		**78,671**	(698,709)

The above statement should be read in conjunction with the accompanying notes.

AUSTRALIAN CENTRE FOR INTERNATIONAL AGRICULTURAL RESEARCH
STATEMENT OF FINANCIAL POSITION

as at 30 June 2004

	Notes	2004 $	2003 $
ASSETS			
Financial assets			
Cash	7A	**459,370**	456,460
Receivables	7B	**2,316,130**	1,099,277
Total financial assets		**2,775,500**	1,555,737
Non-financial assets			
Infrastructure, plant, equipment	8A,C	**663,329**	835,286
Intangibles	8B,C	**117,228**	176,431
Prepayments	8D	**413,981**	117,275
Total non-financial assets		**1,194,538**	1,128,992
TOTAL ASSETS		**3,970,038**	2,684,729
LIABILITIES			
Provisions			
Employees	9A	**1,523,039**	1,693,730
Total provisions		**1,523,039**	1,693,730
Payables			
Suppliers	10A	**130,488**	97,234
Grants	10B	**1,863,319**	610,818
Other program expenditure	10C	**199,747**	108,173
Total payables		**2,193,553**	816,225
TOTAL LIABILITIES		**3,716,592**	2,509,954
NET ASSETS		**253,446**	174,775
EQUITY			
Contributed equity		**-**	-
Reserves		**-**	-
Retained surplus		**253,446**	174,775
TOTAL EQUITY	11	**253,446**	174,775
Current assets		**3,189,480**	1,673,012
Non-current assets		**780,557**	1,011,717
Current liabilities		**2,649,633**	1,618,187
Non-current liabilities		**1,066,959**	891,767

The above statement should be read in conjunction with the accompanying notes.

AUSTRALIAN CENTRE FOR INTERNATIONAL AGRICULTURAL RESEARCH
STATEMENT OF CASH FLOWS
for the year ended 30 June 2004

	Notes	2004 $	2003 $
OPERATING ACTIVITIES			
Cash received			
Goods and services		**12,743**	14,190
Appropriations		**44,930,000**	46,278,000
Interest		**1,248**	49,225
Net GST received from ATO		**2,762,162**	3,072,468
External Funds		**4,306,846**	3,369,674
Other		**13,217**	153,487
Total cash received		**52,026,216**	52,937,044
Cash used			
Employees		**5,170,271**	4,690,267
Suppliers		**3,303,250**	3,794,300
Net GST paid to ATO		**316,925**	309,856
Cash transferred to the OPA		**-**	724,954
Grants		**37,286,991**	38,495,502
Other programme expenditure		**5,844,819**	4,974,627
Total cash used		**51,922,256**	52,989,506
Net cash from / (used by) operating activities	12	**103,960**	(52,462)
INVESTING ACTIVITIES			
Cash received			
Proceeds from sales of property, plant and equipment		**1,890**	2,400
Total cash received		**1,890**	2,400
Cash used			
Purchase of property, plant and equipment		**101,290**	390,340
Purchase of intangibles		**1,650**	94,369
Total cash used		**102,940**	484,709
Net cash (used by) investing activities		**(101,050)**	(482,309)
FINANCING ACTIVITIES			
Cash used			
Capital use charge paid		**-**	32,000
Total cash used		**-**	32,000
Net cash (used by) financing activities		**-**	(32,000)
Net increase / (decrease) in cash held		**2,910**	(566,771)
Cash at the beginning of the reporting period		**456,460**	1,023,231
Cash at the end of the reporting period	7A	**459,370**	456,460

The above statement should be read in conjunction with the accompanying notes.

AUSTRALIAN CENTRE FOR INTERNATIONAL AGRICULTURAL RESEARCH
SCHEDULE OF COMMITMENTS

as at 30 June 2004

	2004 $	2003 $
BY TYPE		
Other Commitments		
Operating leases[1]	**1,001,136**	1,583,927
Other commitments[2]	**30,657,517**	25,570,199
Total other commitments	**31,658,652**	27,154,126
Commitments Receivable	**(478,171)**	(376,356)
Net commitments	**31,180,481**	26,777,770
BY MATURITY		
All net commitments		
One year or less	**18,215,878**	15,800,651
From one to five years	**13,442,774**	10,899,895
Over five years	**-**	77,224
Net commitments	**31,658,652**	26,777,770
Operating lease commitments		
One year or less	**599,304**	583,104
From one to five years	**401,832**	1,000,823
Over five years	**-**	-
Net operating lease commitments	**1,001,136**	1,583,927

NB: Commitments are GST inclusive where relevant.

[1] Operating leases included are effectively non-cancellable and comprise:

- leases for office accommodation; and
- agreements for the provision of motor vehicles to senior executive officers.

[2] As at 30 June 2004, other commitments comprise amounts committed under grant agreements in respect of which the recipient is yet to either perform the services required, or meet eligibility conditions.

These have not been recognised as liabilities in the statement of assets and liabilities.

The above schedule should be read in conjunction with the accompanying notes.

AUSTRALIAN CENTRE FOR INTERNATIONAL AGRICULTURAL RESEARCH
SCHEDULE OF CONTINGENCIES
as at 30 June 2004

CONTINGENT LOSSES

There are no contingent losses.

CONTINGENT GAINS

There are no contingent gains.

SCHEDULE OF UNQUANTIFIABLE CONTINGENCIES

There are no unquantifiable contingencies.

AUSTRALIAN CENTRE FOR INTERNATIONAL AGRICULTURAL RESEARCH
NOTES TO AND FORMING PART OF THE FINANCIAL STATEMENTS
for the year ended 30 June 2004

Note	Description
1	Summary of Significant Accounting Policies
2	Adoption of AASB Equivalents to International Financial Reporting Standards from 2005-2006
3	Events Occurring after Balance Date
4	Operating Revenues
5	Operating Expenses - Administration
6	Operating Expenses - Grants
7	Financial Assets
8	Non-Financial Assets
9	Provisions
10	Payables
11	Equity
12	Cash Flow Reconciliation
13	Remote Contingencies
14	Executive Remuneration
15	Remuneration of Auditors
16	Average Staffing Levels
17	Financial Instruments
18	Appropriation
19	Reporting of Outcomes

AUSTRALIAN CENTRE FOR INTERNATIONAL AGRICULTURAL RESEARCH

NOTES TO AND FORMING PART OF THE FINANCIAL STATEMENTS

for the year ended 30 June 2004

1. Summary of Significant Accounting Policies

1.1 Objectives of ACIAR

The Centre's mission is to achieve more productive and sustainable agricultural systems, for the benefit of developing countries and Australia, through international agricultural research partnerships. Developing countries are the major beneficiaries but there are also spin-offs for Australia. To achieve this goal, ACIAR facilitates and supports bilateral and multilateral research and development activities in a broad range of agricultural areas, including crops, animals, fisheries, forestry, land and water resources management, post-harvest technology, and economic studies of agricultural and natural resource utilisation.

The Centre is structured to meet one outcome:

> Agriculture in developing countries and Australia is more productive and sustainable as a result of better technologies, practices, policies and systems.

The outcome is identified under two outputs:

- Collaborative research that addresses agricultural and natural resource management problems of developing countries and Australia.
- Trained researchers in developing countries and Australia.

1.2 Basis of Accounting

The financial statements are required by section 49 of the *Financial Management and Accountability Act 1997* and are a general purpose financial report.

The statements have been prepared in accordance with:

- Finance Minister's Orders (or FMOs, being the *Financial Management and Accountability (Financial Statements for reporting periods ending on or after 30 June 2004) Orders)*;
- Australian Accounting Standards and Accounting Interpretations issued by the Australian Accounting Standards Board; and
- Consensus Views of the Urgent Issues Group.

The Statements of Financial Performance and Financial Position have been prepared on an accrual basis and are in accordance with historical cost convention, except for certain assets which, as noted, are at valuation. Except where stated, no allowance is made for the effect of changing prices on the results or the financial position.

Assets and liabilities are recognised in the Statement of Financial Position when and only when it is probable that future economic benefits will flow and the amounts of the assets and liabilities can be reliably measured. However, assets and liabilities arising under agreements equally proportionately unperformed are not recognised unless required by an Accounting Standard. Liabilities and assets which are unrecognised are reported in the Schedule of Commitments.

Revenues and expenses are recognised in the Statement of Financial Performance when and only when the flow or consumption or loss of economic benefits has occurred and can be reliably measured.

The Centre is a Statutory Authority under the *Australian Centre for International Agricultural Research Act 1982*. The accounts have been prepared in accordance with that Act.

ACIAR is dependent on appropriations from the Parliament of the Commonwealth for its continued existence and ability to carry out its normal activities.

1.3 Changes in Accounting Policy

There were no changes in accounting policies during the financial period.

1.4 Revenue

The revenues described in this Note are revenues to the core operating activities of the Centre.

Revenues from Government - Appropriations

Departmental outputs appropriation for the year is recognised as revenue.

Resources Received Free of Charge

Services received free of charge are recognised as revenue when and only when a fair value can be reliably determined and the services would have been purchased if they had not been donated. Use of those resources is recognised as an expense.

Other Revenue

Interest revenue is recognised on a proportional basis taking into account the interest rates applicable to the financial assets.

All other revenue is recognised when it is probable that the inflow of future economic benefits has occurred and they can be measured reliably.

1.5 Grants

The Centre makes grant payments under the *Australian Centre for International Agricultural Research Act 1982.*

All grant agreements require the grantee to perform services or provide facilities, or to meet eligibility criteria. In these cases, liabilities are recognised only to the extent that the services required have been performed or the eligibility criteria have been satisfied by the grantee. (Where grants moneys are paid in advance of performance or eligibility, a prepayment is recognised.)

1.6 Employee Benefits

Leave

The liability for employee benefits includes provision for annual leave and long service leave. No provision has been made for sick leave as all sick leave is non-vesting and the average sick leave taken in future years by employees of the Centre is estimated to be less than the annual benefit for sick leave.

The liability for annual leave reflects the value of total annual leave benefits of all employees at 30 June 2004 and is recognised at its nominal amount.

The long service leave liability for 2003-2004 has been calculated using a shorthand methodology using the following probability weightings for each band of completed years from years one to ten:

Completed Years of Service	Probability Weight
0-1	0.5
1-2	0.6
2-4	0.7
4-6	0.8
6-8	0.9
8+	1.0

The liability reflects the future cash outflows in net present terms by applying a 5% discount factor.

For annual leave the maximum of four weeks is recognised as a current liability. The balance of annual leave is treated as non-current.

The non-current portion of the liability for long service leave is recognised and measured at the present value of the estimated future cash flows to be made in respect of all employees at 30 June 2004. In determining the present value of the liability, attrition rates and pay increases through promotion and inflation have been taken into account.

Separation and Redundancy

No provision is made for separation and redundancy payments as the Agency has not formally identified any positions as excess to requirements.

Superannuation

Employees contribute to the Commonwealth Superannuation Scheme and the Public Sector Superannuation Scheme. Employer contributions amounting to $642,246 (2002-2003: $543,829) in relation to these schemes have been expensed in these financial statements.

No liability for superannuation is recognised as at 30 June as the employer contributions fully extinguish the accruing liability, which is assumed by the Commonwealth.

1.7 Leases

A distinction is made between finance leases which effectively transfer from the lessor to the lessee substantially all the risks and benefits incidental to ownership of leased non-current assets and operating leases under which the lessor effectively retains substantially all such risks and benefits.

Where a non-current asset is acquired by means of a finance lease, the asset is capitalised at the present value of minimum lease payments at the inception of the lease and a liability recognised for the same amount. Leased assets are amortised over the period of the lease. Lease payments are allocated between the principal component and the interest expense.

Operating lease payments are expensed on a basis which is representative of the pattern of benefits derived from the leased assets.

1.8 Borrowing Costs

All borrowing costs are expensed as incurred except to the extent that they are directly attributable to qualifying assets, in which case they are capitalised. The amount capitalised in a period does not exceed the amounts of costs incurred in that period.

1.9 Cash

Cash means notes and coins held and any deposits held at call with a bank or financial institution.

1.10 Financial Instruments

Accounting policies for financial instruments are stated at Note 17.

1.11 Acquisition of Assets

Assets are recorded at cost on acquisition except as stated below. The cost of acquisition includes the fair value of assets transferred in exchange and liabilities undertaken.

1.12 Property, Plant and Equipment

Asset Recognition Threshold

Purchases of property, plant and equipment are recognised initially at cost in the Statement of Financial Position, except for purchases costing less than $2,000, which are expensed in the year of acquisition (other than where they form part of a group of similar items which are significant in total).

Revaluations

Basis

Infrastructure, plant and equipment have been revalued in accordance with the 'fair value' principles.

All infrastructure, plant and equipment assets were revalued in June 2003. The revaluation process was performed by the Australian Valuation Office.

There was no significant variation between the depreciated replacement value and their fair value. Accordingly, all assets are shown separately at their gross value and related accumulated depreciation.

Frequency

Infrastructure, plant and equipment are revalued progressively in successive three-year cycles. All current cycles commenced on 30 June 2003.

Conduct

All valuations are conducted by an independent qualified valuer.

Depreciation and Amortisation

Depreciable property plant and equipment assets are written-off to their estimated residual values over their estimated useful lives to the Centre using, in all cases, the straight line method of depreciation.

Depreciation/amortisation rates (useful lives) and methods are reviewed at each balance date and necessary adjustments are recognised in the current, or current and future reporting periods, as appropriate. Residual values are re-estimated for a change in prices only when assets are revalued.

Depreciation and amortisation rates applying to each class of depreciable asset are based on the following useful lives.

	2004	2003
Plant and equipment	5-10 years	5-10 years
Computer Equipment	3 - 5 years	3 – 5 years
Intangibles	5-10 years	5-10 years

The aggregate amount of depreciation allocated for each class of asset during the reporting period is disclosed in Note 8.

1.13 Intangibles

Intangibles consist of proprietary software and are amortised over their useful lives, which range from 5 to 10 years.

All software assets were assessed for indications of impairment as at 30 June 2004. None were found to be impaired.

1.14 Taxation

The Centre is exempt from all forms of taxation except fringe benefits tax and the goods and services tax.

1.15 Insurance

The Centre has insured for risks through the Government's insurable risk managed fund called 'Comcover'. Workers compensation is insured through Comcare Australia.

1.16 Comparative Figures

Comparative figures have been adjusted to conform to changes in presentation in these financial statements where required.

1.17 Rounding

All amounts in these statements are shown in whole dollars.

2. Adoption of AASB Equivalents to International Financial Reporting Standards from 2005-06

The Australian Accounting Standards Board has issued replacement Australian Accounting Standards to apply from 2005-06. The new standards are the AASB Equivalents to International Financial Reporting Standards (IFRSs) which are issued by the International Accounting Standards Board. The new standards cannot be adopted early. The standards being replaced are to be withdrawn with effect from 2005-06, but continue to apply in the meantime.

The AASB Equivalents contain certain additional provisions which will apply to not-for-profit entities, including Australian Government agencies. Existing AASB standards that have no IFRS equivalent will continue to apply, including in particular AAS 29 *Financial Reporting by Government Departments.*

AASB 1047 *Disclosing the Impacts of Adopting Australian Equivalents to International Financial Reporting Standards* requires entities to disclose, in respect of annual or interim reporting periods ending on or after 30 June 2004:

(a) an explanation of how the transition to Australian equivalents to IFRSs is being managed; and

(b) a narrative explanation of the key differences in accounting policies that are expected to arise from adopting Australian equivalents to IFRSs.

The following disclosures address these requirements.

Management of Transition to Australian Equivalents to IFRSs

The Agency has developed a plan for the implementation of Australian equivalents of IFRSs. The plan was reviewed by the Agency's Audit Committee at their latest meeting on 20 August 2004. Review of progress against the plan has been made a standing agenda item for future Audit Committee meetings.

The Agency has been reviewing AASB Pending Standards as they are placed on the AASB web site. Issues relevant to the Agency were identified and an assessment made on the need for specialist advice. Specialist advice has not been sought.

Agency accounting policies are being reviewed, taking into account Australian equivalents on IFRSs and relevant *Finance Briefs* issued by the Department of Finance and Administration.

All financial management staff will receive training on the changes resulting from the introduction of Australian equivalents to IFRSs over the period October to December 2004.

Expected Key Differences in Accounting Policies

In anticipation of the AASB 116 *Property Plant and Equipment* requirement that property, plant and equipment (PPE) assets be measured at fair value or historical cost, all PPE assets were revalued to fair value on 30 June 2003 and an assessment of the accuracy of the fair value was undertaken leading up to 30 June 2004. These amounts will constitute the carrying amounts of PPE assets in the opening balance sheet prepared as at 1 July 2004.

Intangible assets are currently measured on the cost basis under AASB 1041 *Revaluation of Non-Current Assets*.

Proceeds from the disposal of non-current assets are currently recognised as revenue and the carrying amounts of the asset disposed of are recognised as an expense. Under Australian equivalents to IFRSs, the net of these amounts will be recognised as a gain or loss in the Income Statement.

3. Events Occurring After Balance Date

There are no foreseeable financial effects of events or transactions after the reporting date which could materially affect Centre's financial position or operating performance for the next financial period.

4 . Operating Revenues

	2004 $	2003 $
4A - Revenues from Government		
Appropriations for outputs	**46,832,000**	46,278,000
Resources received free of charge	**20,000**	20,000
Total revenues from government	**46,852,000**	46,298,000
4B - Goods and Services		
Goods	**18,522**	25,676
Total sales of goods and services	**18,522**	25,676
Provision of goods to:		
Related entities	**-**	-
External entities	**18,522**	25,676
Total sales of goods	**18,522**	25,676
Costs of sales of goods	**8,800**	12,509
4C - Interest Revenue		
Interest on deposits	**-**	32,324
Interest on GST refunds	**1,248**	5,225
Total interest revenue	**1,248**	37,549
4D - Net Gain / (Loss) from Sale of Assets		
Infrastructure, plant & equipment:		
Proceeds from disposal	**1,890**	200
Net book value of assets disposed	**2,861**	10,020
Net gain / (loss) from disposal of infrastracture, plant and equipment	**(971)**	(9,820)
4E - Revenues from External Sources		
AusAID contributions	**3,168,780**	2,543,340
Industry contributions	**14,776**	160,000
Total revenues from external sources	**3,183,556**	2,703,340

5. Operating Expenses - Administration

	2004 $	2003 $
5A - Employee Expenses		
Wages and Salary	**3,946,525**	3,954,684
Superannuation	**642,246**	547,692
Leave and other entitlements	**211,484**	166,171
Separation and redundancies	**5,072**	4,058
Other employee expenses	**99,377**	138,641
Total employee benefits expense	**4,904,704**	4,811,246
Worker compensation premiums	**25,128**	15,282
Total employee expenses	**4,929,832**	4,826,528
5B - Supplier Expenses		
Goods from related entities	**4,738**	1,286
Goods from external entities	**155,060**	254,910
Services from related entities	**482,699**	477,670
Services from external entities	**2,369,676**	2,247,497
Operating lease rentals*	**562,212**	546,506
Total supplier expenses	**3,574,385**	3,527,870
* These comprise minimum lease payments only.		
5C - Depreciation and Amortisation		
Depreciation		
Other infrastructure, plant and equipment	**263,527**	213,407
Amortisation		
Intangibles - Computer Software	**60,703**	58,740
Total depreciation and amortisation	**324,230**	272,147
Leasehold improvements	**43,387**	38,930
Plant and equipment	**220,140**	174,477
Intangibles	**60,703**	58,740
Total depreciation and amortisation	**324,230**	272,147

6. Operating Expenses - Grants

	2004 $	2003 $
6A - Grants		
Non-profit institutions	**25,586,156**	26,579,160
Overseas entities	**10,110,560**	9,812,146
Total grants	**35,696,716**	36,391,306
6B - Other Program Expenditure		
Training	**2,464,094**	2,511,394
Communications research	**753,677**	677,908
Other research	**2,249,278**	1,683,581
Total other program expenditure	**5,467,049**	4,872,883

7. Financial Assets

7A - Cash		
Special Account	**459,370**	456,460
7B - Receivables		
Goods and services	**26,967**	31,517
Other Debtors	**39,110**	12,509
	66,077	44,026
GST receivable from the Australian Taxation Office	**348,053**	330,297
Undrawn appropriations	**1,902,000**	724,954
Total receivables	**2,316,130**	1,099,277
All receivables are current assets.		
Receivables (gross) are aged as follows:		
Not overdue	**2,316,130**	1,088,814
Overdue by:		
Less than 30 days	**-**	7,110
30 to 60 days	**-**	180
60 to 90 days	**-**	-
More than 90 days	**-**	3,173
	-	10,463
Total Receivables (gross)	**2,316,130**	1,099,277

8. Non-Financial Assets

	2004 $	2003 $
8A - Infrastructure, Plant and Equipment		
Plant and equipment - at 2002-2003 valuation	**1,644,048**	1,590,945
Accumulated depreciation	**(980,719)**	(755,659)
Total Infrastructure, Plant and Equipment (non-current)	**663,329**	835,286
8B - Intangibles		
Computer software		
Purchased computer software	**404,847**	403,347
Accumulated amortisation	**(287,619)**	(226,916)
Total Intangibles	**117,228**	176,431

8C - Analysis of Property, Plant, Equipment and Intangibles

TABLE A
Reconciliation of the opening and closing balances of property, plant and equipment and intangibles

ITEM	Infrastructure, Plant and Equipment $	Computer Software $	TOTAL $
As at 1 July 2003			
Gross book value	1,590,945	403,347	**1,994,292**
Accumulated depreciation / amortisation	(755,659)	(226,916)	**(982,575)**
Net book value	835,286	176,431	**1,011,717**
Additions			
by purchase	94,432	1,500	**95,932**
Net revaluation increment / (decrement)			-
Depreciation / amortisation expense	(263,527)	(60,703)	**(324,230)**
Recoverable amount write-downs			-
Disposals	(2,862)	-	**(2,862)**
Write-off		-	-
As at 30 June 2004			
Gross book value	**1,644,048**	**404,847**	**2,048,895**
Accumulated depreciation / amortisation	**(980,719)**	**(287,619)**	**(1,268,338)**
Net book value	**663,329**	**117,228**	**780,557**

8. Non-Financial Assets – cont

TABLE B
Assets at valuation

ITEM	Infrastructure, Plant and Equipment $	Computer Software $	TOTAL $
As at 30 June 2004			
Gross book value	1,644,048	404,847	**2,048,895**
Accumulated depreciation/amortisation	(980,719)	(287,619)	**(1,268,338)**
Net book value	663,329	117,228	**780,557**
As at 30 June 2003			
Gross value	1,590,945	403,347	**1,994,292**
Accumulated depreciation/amortisation	(755,659)	(226,916)	**(982,575)**
Net book value	835,286	835,286	**1,011,717**

8D - Prepayments	**2004** $	2003 $
Employees	**16,191**	2,057
Suppliers	**50,102**	115,217
Grants	**344,600**	-
Other program expenditure	**3,088**	-
Total	**413,981**	117,275

All other non-financial assets are current assets.

9. Provisions

9A - Employee Provisions		
Salaries and wages	**66,896**	144,659
Superannuation	**-**	19,446
Leave	**1,456,143**	1,529,625
Aggregate employee entitlement liability	**1,523,039**	1,693,730
Workers' compensation	**-**	-
Aggregate employee entitlement liability and related on-costs	**1,523,039**	1,693,730
Current	**456,080**	801,963
Non-current	**1,066,959**	891,767

10. Payables

10A - Supplier Payables		
Trade creditors	**130,488**	97,234
Total supplier payables	**130,488**	97,234
Supplier payables are represented by:		
Current	**130,488**	97,234
Non-current	**-**	-
Total supplier payables	**130,488**	97,234

Settlement is usually made net 30 days.

10B - Grants Payables		
Non-profit institutions		
ACIAR Projects	**765,941**	260,818
External Funded Projects	**1,097,378**	350,000
	1,863,319	610,818
10C - Other Programme Payables		
Research Activities	**131,377**	57,752
Research Publications	**68,371**	50,421
Total other programme payables	**199,747**	108,173

All payables are current liabilities.

AUSTRALIAN CENTRE FOR INTERNATIONAL AGRICULTURAL RESEARCH
NOTES TO AND FORMING PART OF THE FINANCIAL STATEMENTS
for the year ended 30 June 2004

11. Equity

ITEM	Accumulated Results		Asset Revaluation Reserves		TOTAL EQUITY	
	2004	2003	**2004**	2003	**2004**	2003
	$	$	$	$	$	$
Opening balance as at 1 July	**174,775**	873,484		-	**174,775**	873,484
Net surplus/deficit	**78,671**	(698,709)	-	-	**78,671**	(698,709)
Net revaluation increment/(decrement)	-	-	-	-		-
Decrease in retained surpluses on application of transitional provisions in accounting standard AASB 1041 *Revaluation of Non-current Assets*	-	-	-	-	-	-
Transactions with owner:						
Distributions to owner:						
Returns of Capital						
Dividends	-	-	-	-	-	-
Capital Use Charge	-		-	-	-	-
Returns of Capital						
Restructuring	-	-	-	-	-	-
Returns of contributed equity	-	-	-	-	-	-
Contributions by owner:						
Appropriations (equity injections)	-	-	-	-	-	-
Restructuring	-	-	-	-	-	-
Transfers to/(from)/between reserves	-	-	-	-	-	-
Closing balance as at 30 June	**253,446**	174,775	-	-	**253,446**	174,775

Note 12: Cash Flow Reconciliation

	2004 $	2003 $
Reconciliation of cash per Statement of Financial Position to Statement of Cash Flows		
Cash at year end per Statement of Cash Flows	**459,370**	456,460
Statement of Financial Position items comprising above cash: 'Financial Asset - Cash'	**459,370**	456,460
Reconciliation of net surplus to net cash from operating activities:		
Net surplus/(deficit)	**78,671**	(698,709)
Depreciation/amortisation	**324,230**	272,147
Gain on disposal of assets	**-**	-
Loss on sale of assets	**971**	9,820
(Increase)/decrease in net receivables	**(1,216,853)**	(503,905)
(Increase)/decrease in prepayments	**(296,706)**	284,261
Increase/(decrease) in supplier payables	**124,828**	(83,509)
Increase/(decrease) in employee provisions	**(170,691)**	88,064
Increase/(decrease) in grants payable	**1,252,501**	542,442
GST cash refund from financing and investing actvitites	**7,009**	36,927
Net cash from / (used by) operating activities	**103,960**	(52,462)

Note 13: Contingent Liabilities and Assets

There are no remote contingencies.

14. Executive Remuneration

The number of executives who received or were due to receive total remuneration of $100,000 or more:	**2004**	2003
$150,001 - $160,000	-	1
$160,001 - $170,000	-	-
$170,001 - $180,000	-	1
$180,001 - $190,000	**1**	-
$190,001 - $200,000	-	-
$200,001 - $210,000	**1**	-
$210,001 - $220,000	-	-
$220,001 - $230,000	-	1
$230,001 - $240,000	**1**	-
	3	3
The aggregate amount of total remuneration of executives shown above.	**$625,432**	$554,101

The executive remuneration includes all officers concerned with or taking part in the management of the economic entity during 2003-04 including the Director.

15. Remuneration of Auditors

	2004	2003
	$	$
Financial statement audit services are provided free of charge to ACIAR. The fair value of the services provided was:	**20,000**	20,000

No other services were provided by the Auditor-General.

16. Average Staffing Levels

The average staffing levels for the Centre in 2003-2004 were 46.8 (FTE44.87) (2002-2003: 48 (45.7 FTE)).
A number of contract and locally engaged staff are engaged in Australian overseas missions. In 2003-2004 the number was 19.8 (FTE 18.55) (2002-2003: 20 (18.8FTE)).

17. Financial Instruments

17A - Interest Rate Risk

		Floating Interest Rate		Fixed Interest Rate Maturing In			
				1 year or less		1 to 2 years	
Financial Instrument	Notes	2004 $	2003 $	2004 $	2003 $	2004 $	2003 $
Financial Assets							
Cash at bank	7A	-	-	-	-	-	-
Receivables	7B	-	-	-	-	-	-
Total		-	-	-	-	-	-
Financial Liabilities							
Suppliers	10A	-	-	-	-	-	-
Grants	10B	-	-	-	-	-	-
Other program expenditure	10C	-	-	-	-	-	-
Total		-	-	-	-	-	-

		Non-Interest Bearing		Total		Weighted Average Effective Interest Rate	
Financial Instrument		2004 $	2003 $	2004 $	2003 $	2004 %	2003 %
Financial Assets							
Cash at bank	7A	**459,370**	456,460	**459,370**	456,460	**n/a**	n/a
Receivables	7B	**2,316,130**	1,099,277	**2,316,130**	1,099,277	**n/a**	n/a
Total		**2,775,500**	1,555,737	**2,775,500**	1,555,737	**n/a**	n/a
Total Assets				3,970,038	2,684,729		
Financial Liabilities							
Suppliers	10A	**130,488**	97,234	**130,488**	97,234	**n/a**	n/a
Grants	10B	**1,863,319**	610,818	**1,863,319**	610,818	**n/a**	n/a
Other program expenditure	10C	**199,747**	108,173	**199,747**	108,173	**n/a**	n/a
Total		**2,193,554**	816,225	**2,193,554**	816,225	**n/a**	n/a
Total Liabilities				3,716,592	2,509,954		

17. Financial Instruments - cont.

17B - Net Fair Values of Financial Assets and Liablilites

The net fair value of each class of financial assets and liabilities equals the carrying amounts in both 2003 and 2004. Values are shown in the Statement of Financial Position

17C - Credit Risk Exposure

The entity's maximum exposures to credit risk at reporting date in relation to each class of recognised financial assets are the carrying amount of those assets as indicated in the Statement of Financial Performance.

The entity has no significant exposures to any concentrations of credit risk.

18. Appropriation

18A - Acquittal of Authority to Draw Cash from the Consolidated Revenue Fund (Appropriations) from Acts 1 and 3

Particulars	Departmental Outputs	
	2004	2003
	$	$
Year ended 30 June 2004		
Balance carried from previous year	**456,460**	1,023,231
Appropriation Act (No.1) 2003-2004 - basic appropriation	**44,930,000**	46,278,000
Appropriation Act (No.3) 2003-2004 - basic appropriation	**-**	-
Departmental Adjustments by the Finance Minister	**-**	-
Advance to the Finance Minister	**-**	-
Refunds credited (FMAA s30)	**-**	-
Appropriations to take account of recoverable GST (FMAA s30A)	**2,445,237**	2,762,612
Other annotations - revenue credited to Special Account	**4,335,944**	3,588,976
Total Appropriations available for payments	**52,167,641**	53,652,819
Payments made (GST inclusive)	**51,708,271**	53,196,359
Appropriations credited to Special Accounts	**-**	-
Balance carried to next year	**459,370**	456,460
Represented by:		
Cash at bank and on hand	**459,370**	456,460
Add: Appropriations not drawn from the OPA	**-**	-
Add: Receivables - Goods and Services - GST receivable from customers	**-**	-
Less: Other Payables - Net GST payable to the ATO	**-**	-
Less: Payable - Suppliers - GST portion	**-**	-
Total	**459,370**	456,460
Reconciliation for Appropriation Acts (nos.1 and 3)		
Paid to the entity from the OPA	**44,930,000**	46,278,000
Add: Finance Minister reduction of Appopriations in current year	**-**	-
Not drawn from the OPA	**1,902,000**	-
Total Appropriation Acts	**46,832,000**	46,278,000

18B - Special Account

Legal authority: Financial Management and Accountability Act, 1997; s21
Purpose: for the receipt of all moneys and payment of all expenditure related to the operations of ACIAR

This account is non-interest bearing

Particulars	Departmental Outputs	
	2004	2003
	$	$
Balance carried from previous year	456,460	1,023,231
Appropriation Act (No. 1) 2002-2003	-	45,553,046
Appropriation Act (No. 1) 2003-2004	44,930,000	-
Other receipts		
Goods - provision of goods to related entities	14,633	16,59[illegible]
Services - Rendering of services to related entities	4,321,311	3,572,386
GST credits (FMAA s30A)	2,445,237	2,762,612
Available for payments	52,167,641	52,927,865
Payments made to employees	-5,170,271	-4,690,267
Payments made to suppliers	-46,538,001	-47,781,138
Balance carried to next year	459,370	456,460
Represented by:		
Cash - held by ACIAR	459,370	456,460
Add: Receivables - Goods and Services - GST receivable from customers		
Add: Receivables - Net GST receivable from the ATO		
Less: Other Payables - Net GST payable to the ATO		
Less: Payable - Suppliers - GST portion		
Total	459,370	456,460

ACIAR has an *Other Trust Monies Special Account* and a *Services for other Governments and Non-Agency Bodies Account*. For the years ended 30 June 2002-2004 both special accounts had nil balances and there were no transactions debited or credited to them.

The purpose of the *Other Trust Monies Special Account* is for expenditure of monies temporarily held on trust or otherwise for the benefit of a person other than the Commonwealth.

The purpose of the *Services for other Government And Non-Agency Bodies Special Account* is for expenditure in connection with services performed on behalf of other Governments and bodies that are not under the *Financial Management and Accountability Act 1997*.

19. Reporting by Outcome

ACIAR costs have been attributed between the outputs on the basis of direct programme expenditure and salary costs plus a proportion of other running costs based on staff numbers. The basis of attribution in this table is consistent with the basis used for the 2003-04 Budget.

19A - Net Cost of Outcome Delivery

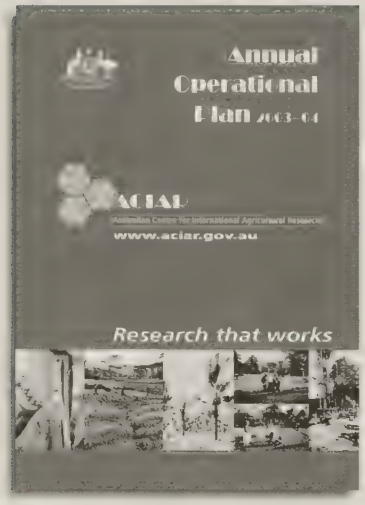
	Outcome 1	
	2004 $	2003 $
Departmental expenses	**49,995,073**	49,900,754
Total expenses	**49,995,073**	49,900,754
Cost recovered from provision of goods and services to the non-government sector		
Departmental	**18,522**	25,676
Total cost recovered	**18,522**	25,676
Departmental revenues		
Interest	**1,248**	37,549
Revenue from disposal of assets	**1,890**	200
Other	**16,528**	137,280
Goods and Services Revenue from Related Entities	**3,183,556**	2,703,340
Total other external revenues	**3,203,222**	2,878,369
Net cost/(contribution) of outcome	**46,773,329**	46,996,709

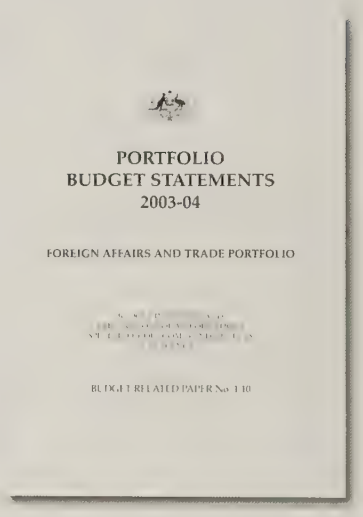
19B - Major Classes of Departmental Revenues and Expenses by Output Group

Outcome 1	Output 1.1		Output 1.2		Total	
	2004 $	2003 $	**2004** $	2003 $	**2004** $	2003 $
Departmental expenses						
Employees	**4,700,981**	4,613,593	**228,851**	212,935	**4,929,832**	4,826,528
Suppliers	**3,408,457**	3,371,787	**165,929**	156,083	**3,574,385**	3,527,870
Depreciation & Amortisation	**309,179**	260,141	**15,051**	12,006	**324,230**	272,147
Grants	**35,696,716**	36,391,306	**-**	-	**35,696,716**	36,391,306
Other Program Expenditure	**3,002,955**	2,361,489	**2,464,094**	2,511,394	**5,467,049**	4,872,883
Other	**2,861**	10,020	**-**	-	**2,861**	10,020
Total departmental expenses	**47,121,149**	47,008,336	**2,873,925**	2,892,418	**49,995,074**	49,900,754
Funded By:						
Revenues from government	**44,353,000**	43,700,000	**2,499,000**	2,598,000	**46,852,000**	46,298,000
Sale of goods and services	**18,522**	25,676	**-**	-	**18,522**	25,676
Other non-taxation revenue	**3,203,222**	2,878,369	**-**	-	**3,203,222**	2,878,369
Total departmental revenues	**47,574,744**	46,604,045	**2,499,000**	2,598,000	**50,073,744**	49,202,045

Tracking performance

	Page
Against the 2001–06 Corporate Plan	139
Against the 2003–04 Portfolio Budget Statement	144
Against the 2003–04 Annual Operational Plan	147
Against Australia's National Research Priorities	148





Vision

ACIAR looks to a world where poverty has been reduced and the livelihoods of many improved through more productive and sustainable agriculture emerging from collaborative international research

Mission

To achieve more productive and sustainable agricultural systems, for the benefit of developing countries and Australia, through international agricultural research partnerships

Outcome

Agriculture in developing countries and Australia is more productive and sustainable as a result of better technologies, practices, policies and systems

Tracking performance against the 2001–06 Corporate Plan

ACIAR's vision

ACIAR looks to a world where poverty has been reduced and the livelihoods of many improved through more productive and sustainable agriculture emerging from collaborative international research

ACIAR's mission

To achieve more productive and sustainable agricultural systems, for the benefit of developing countries and Australia, through international agricultural research partnerships

Outcome

Agriculture in developing countries and Australia is more productive and sustainable as a result of better technologies, practices, policies and systems

Critical success factors	Key performance indicators	Performance 2003–04
1. Research outputs (including agricultural policy analyses) that clearly align with improvements to productivity and sustainability of agricultural systems	• Evidence of uptake and use of research outputs	• Six external impact assessments were conducted during 2003–04 to assess benefits from ACIAR-supported research – ACIAR and AusAID funded rodent control project adoption in Vietnam assessed as having a benefit: cost ratio (BCR) of 21:1 and a net present value of A$1,565 per hectare. The success of this project has seen the Vietnamese Government officially endorse the rodent control methodology as Government policy - Genetics and breeding for rust resistance in wheat in India and Pakistan—present value benefit of $57.2m, BCR of 17:1. These benefits are calculated mainly on the basis of training of Indian and Pakistani scientists. - Grain market reform in China, to demonstrate how China would benefit from efficiency gains, present value benefits of between A$40.3m and A$88.6m depending on the speed at which such benefits are instituted – Present value benefit of bringing forward commercial release of acacia hybrids in Vietnam by 4 years is $152m (BCR 145) - Management and biology of coconut crabs on Vanuatu examining the results of initial project work and follow-up revealed benefits of A$3.2m accruing over 50 years, with individual crab-collecting households benefiting by up to A$2,700 per year. - Increasing agricultural production and environmental quality through water and nitrogen management in the north China Plain—present value benefits of $219m; farmer income increased by $50–$109 per year • Other evidence of uptake and use of ACIAR project research outputs obtained during 2003–04 includes: - Extension of the 'lus-frut mama' and mobile card schemes to provide additional income earning opportunities to smallholders in cocoa and coconut industries (see page 20) - PNG quarantine authorities having maps of the distribution of sugar cane pests and diseases following a project mapping their range - An economic model in place to help determine sustainable catches of migratory tuna for Pacific Island countries - Training in forest health surveillance methods for stakeholders in Fiji, Samoa, Tonga and Vanuatu - Expanding Burmese capacity to produce ACIAR-developed vaccines against Newcastle disease—a major threat to village and smallholder chickens - Through World Vision the extension of the results of projects on: - Producing chemical free vegetables in Thailand - Implementing community-based rodent management in Vietnam (see page 49) - Working with NGOs to disseminate improved varieties of seed for staple food crops (identified through ACIAR-supported research) in Afghanistan and East Timor - Improved weed control and nutrient applications for Eucalypt plantations in Kerala State in India

2. Government recognises and values ACIAR as an integral part of the Australian aid program

- **Positive feedback from Australian Government**

  - In 2003–04, ACIAR responded to changing Government priorities, including in its project portfolio:
    - Collaborative agricultural R&D opportunities were assessed in the Solomon Islands with three new projects under development, and four projects initiated in the Tibet Autonomous Region of China. The majority of ACIAR's bilateral projects in China are now centred on or include significant research in the country's western regions, the poorest areas of China
    - Joint initiatives in the Philippines were developed and co-funded with AusAID to address the Prime Minister's commitment to assist in facilitating regional agricultural trade
    - ACIAR's bilateral project investments in PNG and the Pacific increased, and the Indonesia program was maintained as a major partner
    - Investigating the development of a small program of activities in Iraq with two projects now in development

  - ACIAR actively contributed to relevant whole-of-government initiatives, including:
    - The National Research Priorities, through reporting and development of an implementation plan (see page 148 for reporting against these priorities)
    - Involvement in development of a cross-jurisdictional Tropical Science strategy
    - Participation in a Department of Agriculture, Fisheries and Forestry (DAFF) policy development initiative in biosafety and plant genetic resources
    - The formulation of several new AusAID country strategies and strategic reviews in Cambodia and PNG
    - Highlighting Australia's contributions to Thai agriculture through media visits and a commemorative function in Bangkok
    - Reporting on relevant ACIAR activities to the UN (such as efforts to combat desertification)

- **Bilateral research resources disbursed on a regional basis within agreed percentage ranges**

  - The ACIAR Board, in conjunction with the Minister and in consultation with the Executive, establishes target ranges for our bilateral program. Actual expenditure for 2002–03 and 2003–04 (including AusAID funds) for each target is as follows

	Board target %	*2002–03 as %*	*2003–04 as %*
PNG & Pacific	10–20	18	19.8
Southeast Asia	50–60	48	43.5*
North Asia	10–20	16	18.1
South Asia	10–20	14	15.7
Africa	0–5		2.9
Other		1	0

  * *Security concerns in Indonesia and the southern Philippines and the 2003 outbreaks of Avian Bird Flu and of Severe Acute Respiratory Syndrome limited travel in the region, causing outlays in Southeast Asia to remain below the target range for 2003–04.*

- **Funding to IARCs reflects their performance and needs and Australia's interests**

  - ACIAR continued to implement changes first adopted in 2002–03 to deliver a more strategic approach to engagement with IARCs, based on comparative research advantages to meet priorities of the Asia-Pacific region. Five of the targeted IARCs are located in this region, with six having a special responsibility for staple crops in the Asia-Pacific region. Project funding to IARCs is based on the Centres having a significant research capability that matches identified priorities and Australia's research capability with projects helping partner country's research efforts. All IARC projects now target benefits to the Asia-Pacific and Southern African regions that are the focus of the Australian aid program.

3. ACIAR's funding base secured, and flexible and realistic project funding arrangements in place	• ACIAR's appropriation at least maintained in real terms	• Appropriation funding to ACIAR in 2003–04 was $A46.83m, compared with $A46.28m in 2002–03.
	• Co-investment by ACIAR and its research partners matches mutual priorities and ability of partners to contribute	• Strong support has been obtained from a number of partners, including: - Increasingly seeking opportunities to work with NGOs to deliver the results of past and current research. In 2003–04 new projects were developed with several NGOs including World Vision (PNG, Thailand, Vietnam, Laos, Cambodia), Kastom Gaden (Solomon Islands), Quakers (Cambodia), CRS (Philippines). Other projects involving NGOs were designed in India, Afghanistan, PNG and South Africa. - Industry involvement in ACIAR projects continues to be strong. Projects designed or commenced in 2003–04 with the involvement of industry or industry groups include those on forest product marketing in the Philippines, maize and soybeans in Cambodia, sandalwood establishment in Vanuatu, fruit flies in Indonesia, monitoring prawn catches in PNG, smallholder income distribution from oil palm and cocoa in PNG, grain drying in India and fertiliser use in Southern Africa. - Research partners contributed 52 per cent of project costs in 2003–04, compared with 54 per cent in 2002–03.
	• Evidence of financial support from other sources for research activities that are developed by ACIAR	• External contributions to ACIAR in 2003–04 were A$3.2m, a higher overall contribution than 2002–03 (A$2.8m) These external contributions were largely from AusAID, but also include co-investment or parallel investment inACIAR-developed projects such as: - Grains Research & Development Corporation (*Brassica* breeding in China and India) - Horticulture Australia Limited (control of citrus greening disorder in Indonesia). - Rural Industries R&D Corporation and Department of Agriculture Fisheries and Forestry co-funding of biosecurity projects.
4. Research priorities established in consultation with key stakeholders in partner countries and Australia, and with regional fora	• Project portfolio matches priorities	• Two formal consultations were held, the first to set priorities with the Pacific Island countries and the second with Vietnam. Pacific organisations and countries represented were Fiji, Kiribati, Samoa, Solomon Islands, Tonga and Vanuatu, along with the Secretariat of the Pacific Community. The Vietnam consultations drew together representatives of relevant Vietnamese Government Ministries, Departments and research organisations. • 2003–04 was the first year ACIAR published an Annual Operational Plan, detailing project priorities by country and program area, to provide a greater level of focus for ACIAR operations and project development • ACIAR responded to specific needs by developing and implementing projects to respond to specific needs of developing country partners that also matched ACIAR priorities. These included: - Livestock disease diagnosis and management in Laos - Trade liberalisation in India - Sweet potato production in PNG - Marketing of crops in Cambodia - Grasslands management in China • Examples of projects undertaken in 2003–04 that match agreed partner country priorities, include: - In PNG, designing and initiating new projects on production and marketing of crops important for smallholder cash income, such as potatoes, sweet potatoes, vegetables and cocoa - In the Pacific, by developing a portfolio of activities designed to improve smallholder food security in the Solomon Islands - In Vietnam, developing new initiatives which build capacity in agricultural policy and R&D planning and addressing farm income generation - In China, initiating four projects in Tibet Autonomous Region and designing projects that address key land and water use policy issues, especially in western China - In the Philippines, ensuring that new projects directly involve end users such as farmer groups - In India, by developing new projects on trade policy and water resource management - Expanding our overall program with Cambodia with an emphasis on agricultural diversification

5. Streamlined, flexible, transparent and accessible project development and approval processes	• Time from start to finish of project development, and streamlining of implementation	• For the seven major partner countries, the average time taken for project development (from first consideration at the In-House Review to Director's approval) was 11.0 months (compared with 13.4 months in 2002–03 and 15.1 in 2001–02). The average time taken for partner approval (overseas and domestic based on time taken from sending to return of MOUs) was 2.14 months (compared with 4.6 months in 2002–03 and 5.1 in 2001–02). • More than 90 per cent of all project proposals brought to In-House-Review (ACIAR's internal mechanism for peer review of projects) matched relevant country priorities in the 2003–04 Annual Operational Plan (includes both bilateral and multilateral projects) • In 2003–04, ACIAR started 38 new bilateral projects and eight new multilateral projects • Project reporting guidelines are now universally used and have enabled on-time submission of annual and final reports presented in a format for web publication of summaries • Project proponents are routinely using the ACIAR website to obtain information on country priorities and project application documentation
6. Effective communication with key stakeholders	• Key groups within and outside ACIAR well informed and listened to by ACIAR	• Key groups outside ACIAR: - Statistical trends on visitors to the ACIAR website show 40 per cent of visitors are from partner countries - Australian stakeholders including DFAT, State and Federal Departments and key research partners (CSIRO, Universities, etc) in list of top 100 visitors - Annual Operational Plan, which provides key information on country strategies, priorities and financial allocations developed with input from key stakeholders, including the Policy Advisory Council - 2004–05 Annual Operational Plan finalised after consultation with Policy Advisory Council, AusAID, DFAT and Australian Heads of Mission - At the Federal Government level, continuing dialogue with AusAID, DFAT and Minister • Key groups within ACIAR: - Delivery of project information database direct to ACIAR's Country Offices - Development of extranet portal
	• Others call on ACIAR and project staff for consultation and advice	• ACIAR involvement: - In agricultural policy advice to the Chinese Vice Premier through the China Council for International Cooperation on Environment and Development - In further review of CGIAR research activities - In FAO meetings on responses to the Avian Bird Influenza (Bird flu) outbreak - In review of Australian assistance in Cambodia - With AusAID working groups and reviews on Bird Flu outbreak and on the review and design of AusAID projects - With Department of Agriculture, Fisheries and Forestry on biosecurity - As invited keynote speakers by senior R&D staff at international technical and development meetings - Of senior staff and Executive on Rural R&D Corporation Boards and Advisory Committees and on relevant interdepartmental committees

7. Capacity-building focused on the human resource development needs of collaborators; this includes the effective delivery of project outputs in targeted countries to achieve practical outcomes	• Capacity of partner country and Australian partners to identify and prioritise needs and conduct R&D, focus on problem solving, and deliver the results to farmers	• Fifty active John Allwright Fellowships for postgraduate study in Australia and three John Dillon Fellowships for short-term leadership development were provided. • A survey of successful John Allwright Fellows who have returned to their home country revealed 80 per cent had been promoted from their first post-return position and believed that their experience gained during the Fellowship was a key factor. In addition 81 per cent of Directors of organisations employing returned Fellows indicated that the subsequent promotion of these Fellows was mainly due to this experience. • ACIAR's collaborative approach to project design and implementation involves informal project training of partner country scientists and where applicable, involvement in formal training courses run by ACIAR and the Crawford Fund. • Australian project scientists gain practical, on-the-ground experience in their own disciplines, increasing their knowledge and skills. • Linking developing country research institutes in selected projects to NGOs and industry was a feature of ACIAR's 2003–04 program in PNG, Pacific Islands, Thailand, Laos, Cambodia, Vietnam, Philippines, South Africa, China and India. • Training courses for developing country project scientists have been delivered in: - Australia and Indonesia on research management - The Pacific on research project evaluation - PNG on participatory action research - Cambodia on experimental design and analysis. • Advice on impact assessment and formal training on research evaluation has been delivered to more than 50 Australian project leaders.
8. An appropriately skilled, committed and enthusiastic ACIAR workforce focused on tasks that enhance outputs	• Staff skills match the Centre's needs, training reflects priorities for skills enhancement, staff feel valued and performance is recognised	• Individual staff performance agreements include identification of training priorities, with the Human Resources section matching these priorities to available training, both for individuals and where warranted for groups, such as a training workshop on performance feedback. An average of $1821 per member of staff was spent on training initiatives (excluding in-house training and workshops). • An all-staff workshop was held in November 2003 with streamlining of approaches for planning and reporting and revised performance management addressed • A revised recognition and reward scheme, allowing more flexible recognition of staff performance, was developed and agreed to in a majority vote (92 per cent) to vary the Centre's Certified Agreement • An internal survey of staff perceptions of ACIAR support to help staff achieve a work–life balance revealed 94 per cent of staff agreed that these help them meet their needs • A Values statement codifying the Centre's approach to open, honest communication, scientific and professional excellence, and innovation and creativity, was developed in 2003–04

Tracking performance: against the 2003–04 Portfolio Budget Statement

Output	Indicator	Performance 2003–04	
1.1 Collaborative research that addresses agricultural and natural resource management problems of developing countries and Australia	***Quality:***		
	• Regional investment profile is consistent with Australian Government aid priorities	Government priorities (from *Australia's Overseas Aid Program 2003–04)*	ACIAR position (based on change in bilateral research expenditure by country and region from 2002–03 to 2003–04)
		PNG—increasing investment	PNG investment from 11.4 to 13.1%
		Pacific Islands—increase	Pacific up from 6.0 to 6.7% Regional investment up from 17.9% (2002–03) to 19.8%
		Indonesia—maintain strong program	Indonesia maintained at 14.4% as large program
		Rising investment in: Cambodia	Cambodia up from 2.5 to 3.9%
		Laos	Laos up from 2.1 to 2.8%
		Philippines	Philippines down from 11.1 to 7.4%
		Investment in Vietnam steady	Vietnam steady at 8.1%
		Reduced investment in Thailand	Thailand down from 4.3 to 4.1%
		East Timor	East Timor down from 2.6 to 1.1% Regional investment down from 47.8 to 43.5%
		North Asia—reduced investment particularly in China	China up from 14.9 to 16.6% (budgeted to fall in 2004–05 and 2005–06)
		South Asia slightly reduced investment	South Asia rose slightly 13.5 to 15.7% (investment up due to AusAID-funded Afghanistan project)
		African investment reduced and more projects in RSA	Africa down from 4.6 to 2.9% with 82% of projects in RSA (up from 70%)
	• Research partners contribute 40–55 per cent of project costs	• Partners contributed 52% of project costs	
	• >90 per cent of concluding projects are assessed by external reviews as having achieved their main objectives	• ACIAR conducted 34 project reviews in 2003–04. 23 of these reviews showed '...that the projects have achieved at least 80% of their objectives'. Two-thirds were extended to improve the potential for significant community impact.	

Output	Indicator	Performance 2003–04
	• There is further substantiated evidence of significant economic, social and environmental impacts from completed ACIAR projects	• Four impact assessments published and three more completed; 12 commissioned adoption statements completed and received
	• Support for multilateral research providers is concentrated on those International Agricultural Research Centres with greatest comparative advantage	• New IARC funding arrangements entered their second year in 2003–04 continuing the trend to fund fewer Centres based on those with a significant involvement in the Asia-Pacific region. Thirteen IARCs received core funding compared with 17 in 2001–02. Since late in 2002–03, all project specific support has been designed to deliver benefits to the Asia-Pacific region and southern Africa.
	Quantity:	
	• 235–245 research projects will be delivering outputs during 2003–04	• ACIAR had 221 active projects during 2003–04: - 192 bilateral - 29 multilateral projects • ACIAR senior research staff, Executive and Board agreed to move to having larger, fewer projects.
	• >10,000 copies of ACIAR research publications and papers are requested or downloaded	• ACIAR distributed: - 9,514 hard copies of publications in response to requests (cf 9,052 in 2002–03). 608 of these were sales. - 10,960 unique visitors downloaded 74,924 copies of publications.
1.2 Trained researchers in developing countries and Australia	***Quality:***	
	• >80 per cent of trainees indicate satisfaction with training	• Exit surveys on completion of all short training courses, using a 5-point scale, indicated over 95 % of trainees were satisfied to highly satisfied.
	Quantity:	
	• > 100 trainees are in formal, ACIAR-supported training courses	• In 2003–04, ACIAR had 50 active John Allwright Fellows undertaking postgraduate study in Australia, of which 6 were new awards. • Three John Dillon Fellowships were awarded for research management training • Nine cross-program training courses (average around 14 participants) were held with 123 attendees

Operational isues and problems

ACIAR has, and will continue to adopt, a safety first approach, when approving travel for its own personnel and in negotiating travel for project personnel. The Centre follows the travel advisory updates issued by the Department of Foreign Affairs. Progress on two existing projects in the Democratic People's Republic of Korea has increased, though travel restrictions on DPRK scientists have curtailed some activities.

Concerns related to the security situation in Zimbabwe continue to constrain project implementation. Project development in Burma was also curtailed due to political and security issues. The impact of the Avian Bird Flu, and to a lesser extent SARS, in China and Southeast Asia also precluded activity in several projects. Ongoing security concerns relating to Pakistan, Papua New Guinea and the southern Philippines, especially southern Mindanao, have also slowed progress on some projects.

Resources for outcome

Financial performance

In 2003–04 ACIAR's direct expenditure on outputs 1 and 2, including bilateral and multilateral research projects, education and training of researchers and project-related publications disseminating research results, represented 82 per cent of expenditure.

The Centre has continued to maintain its healthy financial position. For 2003–04 we operated with a small surplus of $78,671. The Centre will continue to operate a balanced budget in future years to maintain this position. A much stronger focus on effective balance sheet management has been introduced over the past year.

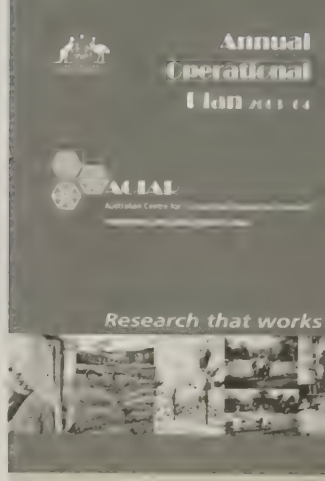
Price of departmental outcomes

Outcome 1

Agriculture in developing countries and Australia is more productive and sustainable as a result of better technologies, practices, policies and systems.

	Actual ($m) 2003–04	Budget estimate ($m) 2004–05
Departmental appropriations		
Output 1.1: Collaborative research that addresses agricultural and natural resource management problems of developing countries and Australia	44.333	44.955
Output 1.2: Trained researchers in developing countries and Australia	2.499	2.568
Total revenue from government (appropriations) contributing to price of departmental outputs	46.832	47.523
	93.5%	93.1%
Total revenue from other sources	3.242	3.516
Total price of departmental outputs (Total revenue from government and from other sources)	50.074	51.039
Total estimated resourcing for Outcome 1 (Total price of outputs)	49.995	51.039
	2003–04	2004–05
Average staffing level (number)	65*	65*

** There has been a change in the basis of calculating staff numbers to include staff not employed under the Public Service Act to reflect the total staffing of ACIAR including locally engaged staff serving at overseas posts. The previous figure of 47 was based only on staff employed under the Act.*



Tracking performance: against the 2003–04 Annual Operational Plan

ACIAR published its first Annual Operational Plan (AOP) in June 2003, setting out research priorities for the 2003–04 financial year. The Plan, built around ACIAR's appropriation for the financial year, provided a transparent window into ACIAR's operations and research directions, including grouping research priorities by country and key program areas.

A focus of the AOP was the development of more targeted programs in each country. To measure ACIAR's progress in each country key performance indicators were listed that reflected both the drive to refine and target programs more strongly, and to deliver research applicable to partner country needs. These are reported against in the Regional achievements chapter, within the report for each country. AOP indicators for other core areas of operation, such as the Multilateral program, Communicating research, Measuring research impacts and Building research capacity, are included in the relevant chapters of the Year in Review section. Of the 77 indicators, 69 were achieved, 4 were not achieved, and a further 4 were not achieved due to political or security reasons outside ACIAR's control.

Portfolio management*

AOP budgeted expenditure in 2003–04	$3,650,000
Actual expenditure in 2003–04	$3,246,618
Proportion of total ACIAR expenditure 2003–04	6%

** includes Executive and Advisory (Executive Planning and Board/Policy Advisory Council/Policy Secretariat), Information Services, Information Technology and Infrastructure, Finance, Human Resources and International Support*

Key performance indicators	Performance 2003–04
• Running costs do not increase in real terms.	In real terms running costs were static, with an increase of two per cent equalling inflation.
• All legislative and reporting requirements are met with no significant operational problems.	All legislative requirements, including the Annual Report 2002–03, the Portfolio Budget Statement, and other reporting requirements were met.
• Extent to which information is being made more accessible and our operations are being kept as simple as possible.	Web access and project information system changes have made information more accessible, especially to country offices. Support operations were carried out by fewer people more efficiently.

ACIAR's project partnerships are international, collaborative and inter-governmental. Portfolio management covers effective project implementation and delivery of results in a complex operating environment through a sound administrative underpinning and an investment in information services. It also requires an investment in overseas offices that is sufficient to facilitate a collaborative approach, in which partner country priorities are heard and addressed.

Tracking performance: against Australia's National Research Priorities

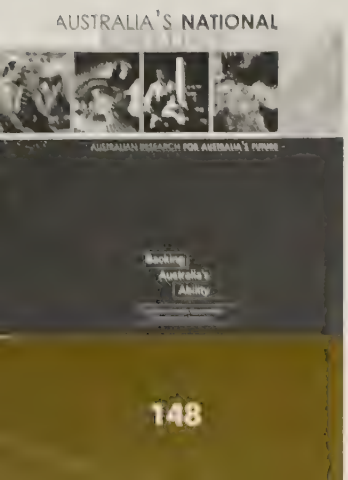
Key performance indicators	Performance 2003–04
1. Increased share of resources devoted to priority themes 1 and 4	Funding of research projects relevant to priority themes 1 and 4 increased from 37% of bilateral research funding in 2002–03, to 51% in 2003–04
2. Increased evidence of co-funding of projects in national research priority areas	Co-funding by collaborators in projects in priority themes 1 and 4 increased from $7.56m in 2002–03 to $7.70m in 2003–04

ACIAR's research funding priorities are driven primarily by Australia's aid agenda, and are substantially influenced by the agricultural development priorities of our regional partner countries. Priorities are established through regular consultations that seek to match partner country needs with areas in which Australia has a comparative advantage in research expertise.

ACIAR's partnership mode, in which Australian researchers collaborate with partner country scientists on problems of mutual interest, ensures that Australia also benefits from many of the projects we facilitate and fund. Many of the issues that Australia faces in working towards environmentally sustainable agriculture and natural resource management are shared with developing countries, who face similar challenges from variable climatic conditions, degraded and eroded soils, poor soil fertility, uncertain water supplies, unsustainable farming practices, and exotic weeds, pests and diseases. ACIAR's mission is to achieve more productive and sustainable agricultural systems, for the benefit of developing countries and Australia. Therefore, there is a strong alignment between ACIAR's priorities within the context of Australia's international development cooperation program, and Australia's national research priorities under themes 1 and 4.

In formulating its implementation plan for addressing the national research priorities, ACIAR documented Australian-focused objectives of active projects that fall under these themes, and reported its total budgeted investment in these and other projects that involve Australian scientists with expertise in national research priority areas. As these areas of comparative advantage are strengthened by and become more aligned with Australian national research priorities, they are more likely to be selected as the areas in which Australia can best apply its expertise for the benefit of developing countries. For example, there has been a shift in the emphasis of the partnership in China and India away from increasing agricultural production *per se* to one of sustaining agricultural production. Therefore, Australian skills in the first priority theme of environmental sustainability are expected to be more frequently involved in ACIAR-funded research directed towards these countries.

ACIAR's implementation plan was amended in May 2004 to incorporate the new subtheme 1.7 *Responding to climate change and biodiversity*, and to add new projects and remove completed projects from the table of priority-relevant projects.



Performance indicator 1: ACIAR investments in National Research Priorities (themes 1 and 4) 2002–03 to 2004–05

	2002–03 actual ($m)	2003–04 actual ($m)	2004–05 planned ($m)
1. An environmentally sustainable Australia			
1.1 Water – a critical resource	2.62	2.54	3.28
1.3 Overcoming soil loss, salinity and acidity	1.35	2.04	2.24
1.4 Reducing and capturing emissions	0.09	0.27	0.18
1.5 Sustainable use of Australia's biodiversity	1.89	2.31	2.03
1.7 Responding to climate change and biodiversity*		0.04	0.18
Total Theme 1	**5.94**	**7.20**	**7.83**
4. Safeguarding Australia			
4.2 Protecting Australia from invasive diseases and pests	3.78	5.86	6.78
Total Theme 4	**3.78**	**5.86**	**6.78**
TOTAL THEMES 1 AND 4	**9.72**	**13.06**	**14.69**
TOTAL as percentage of total ACIAR bilateral project funding	**37%**	**51%**	**52%**

**New priority area added by the Government during 2003–04*

Performance indicator 2: Co-funding by collaborating organisations in projects relevant to the National Research Priorities (themes 1 and 4)

	2002–03 actual ($m)	2003–04 actual ($m)
1. An environmentally sustainable Australia		
1.1 Water – a critical resource	2.33	2.38
1.3 Overcoming soil loss, salinity and acidity	1.69	1.75
1.4 Reducing and capturing emissions	0.14	0.49
1.5 Sustainable use of Australia's biodiversity	1.94	1.72
Total Theme 1	**6.11**	**6.34**
4. Safeguarding Australia		
4.2 Protecting Australia from invasive diseases and pests	1.45	1.36
Total Theme 4	**1.45**	**1.36**
TOTAL THEMES 1 AND 4	**7.56**	**7.70**

The above table shows a slight increase in co-funding of projects in national research priority areas in the reporting period. ACIAR's partnership mode of operation emphasises in-kind and funded contributions by research collaborators. In addition, projects may be designed to align closely with, for example, research being undertaken by Cooperative Research Centres, or funded by Rural Industries Research Corporations.

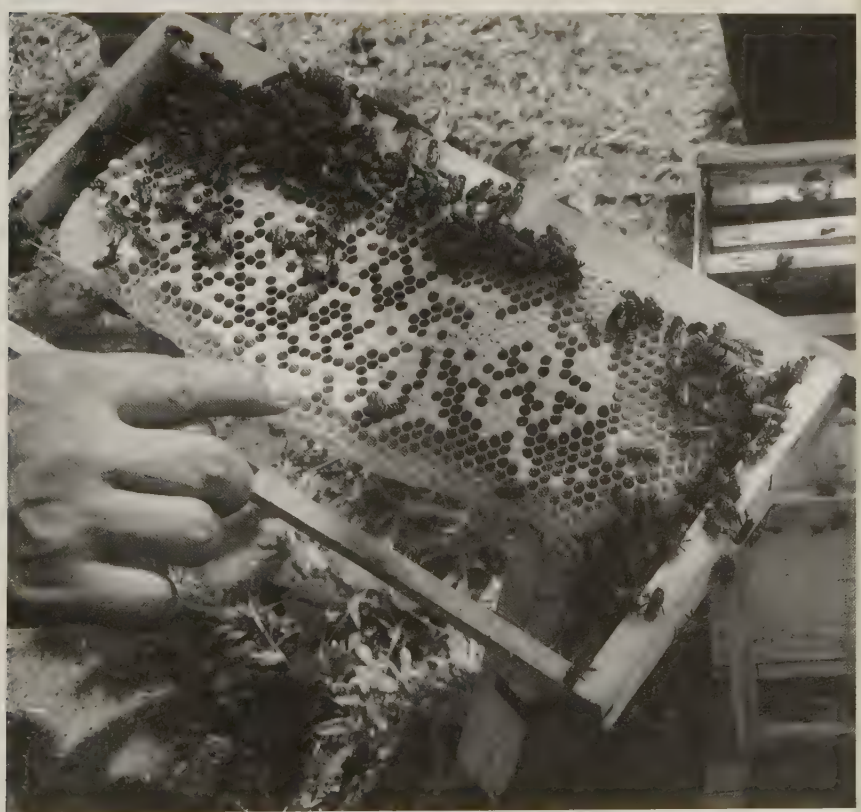
The following table demonstrates the range of outputs from ACIAR-funded research in national research priority areas that are of direct benefit to Australia. In 2003–04, 38 of a total of 192 active bilateral projects were delivering benefits to Australia in national priority areas.

Projects in 2003–04 with Australian benefits directly relevant to Australia's National Research Priorities

Theme 1: an environmentally sustainable Australia

Priority goals	ACIAR projects	Key Australian project outputs
1.1 Water – a critical resource	ADP/2001/014	In Australia, an analysis has been carried out of the robustness of new approaches to determine effective institutional arrangements for water management
	ASEM/2001/095	An integrated water resources assessment framework for analysing water allocation rules has been constructed and is able to be adapted to suit individual catchments
	CIM/1997/114	High-yielding peanut varieties have been identified for use in drought-prone Australian environments
	FST/1997/077	Predictive tools for water yields from plantation catchments in Victoria have been developed
	FST/1999/035	Catchment modelling techniques have been adapted for use in land-use planning in tropical Australia
	LWR/2000/084	A risk assessment of the environmental aspects of agricultural pesticides has being made for the 6th Creek, Mount Lofty region of Adelaide Hills
	LWR/2000/030	An analysis of the impact of water-saving irrigation practices at large scales has been made in the Murray–Darling Basin
	LWR/2002/018	Tools to optimise revegetation for salinity abatement in the Middle and Upper Murrumbidgee Catchment are being developed
	LWR/2003/006	New approaches to manage artificially-recharged aquifers under development in Australia
	SMCN/2000/089	Permanent crop bed technology trialled in Australia to increase water use efficiency in irrigated cropping while reducing energy inputs
	SMCN/2002/093	Increases in overall water use efficiency of cereal crops grown in South Australia through double-cropping studies
1.3 Overcoming soil loss, salinity and acidity	ASEM/1998/052	Application of the 'Landcare' approach to subtropical horticulture industries formalised in community groups in southeast Queensland
	ASEM/2000/109	Reduction of soil losses in cereal cropping in northern NSW through introduction of conservation tillage practices
	AS1/2001/005	Prevention of environmental contamination from tanneries in Australia by improved recycling of agents used in tanning
	LWR/1997/150	A combined economic and hydrological model of salinisation has been further developed for a catchment in the Upper Macquarie Valley, NSW
	LWR/1998/130	Vulnerability to salinisation under different management practices can be mapped
	LWR/1998/124	Options for farmers to minimise soil degradation by acidification and nutrient loss in legume-based pastures in northern Australia established
	LWR/2002/085	Fertility capability classification initiated to improve soil and fertiliser management in the Herbert River catchment of Queensland
	SMCN/1999/094	Facilitation of adoption of reduced tillage systems in broadacre cropping
1.4 Reducing and capturing emissions in transport and energy generation	ASEM/2002/066	Bioeconomic models to analyse the performance and transaction costs associated with different land use changes in forestry systems in eastern Australia designed to capture carbon credits
	ASEM/2000/088	A forestry development plan completed for the Atherton Tablelands
1.5 Sustainable use of Australia's biodiversity	CIM/2000/002	New techniques developed for conservation and regeneration of Australian native tropical fruit germplasm
	FIS/2002/083	New tools to establish genetic diversity of native freshwater crustaceans
	FIS/2003/037	Assessment of the diversity of Australian shark and ray fishery stocks in northwest waters
	FST/1996/124	Hybrid eucalypts identified for potential use in revegetating degraded sites in inland Australia
	FST/2000/003	Mixed species plantations identified for trial, in order to provide more diverse environmental services
	FST/1998/096	Domestication of Australian trees is introducing new native tree species into commercial use
	FST/1996/005	Domestication of Australian Meliaceae species to use these highly valuable native timber species
	FST/1994/019	Better genetic differentiation of mangrove species for coastal rehabilitation projects in Queensland

Priority goals	ACIAR Projects	Key project outputs
4.2 Protecting Australia from invasive diseases and pests	AS1/2002/108	Mouse model developed to predict mouse plagues in southern Australia
	AS1/2000/009	Diagnostic test assessed for the identification of the exotic disease *Trypanosomes evansi* in livestock
	AS1/2003/001	Improved diagnostic tools for exotic livestock diseases (classical swine fever and foot and mouth disease)
	AS2/1999/063	Improved vaccines against tick-borne diseases used to assess live cattle exports from Australia
	AS2/1999/060	Diagnostic tests applied for dockside detection of parasitic mites of honey bees
	CP/2002/013	Understanding of the life cycle of red-banded mango caterpillar, an exotic pest of mangoes recently discovered in mainland Australia
	CP/2000/090	Integrated pest management strategies developed for a major Asian leaf miner pest of vegetables
	CP/1996/091	Improved biological control of Siam weed in PNG, reducing the threat of its invasion of Australia



Control of parasitic mites of honey bees

Reporting against other statutory requirements

	Page
Management of human resources	**153**
Commonwealth Disability Strategy (CDS)	154
Occupational Health and Safety	155
Workplace Diversity Plan	155
External scrutiny and auditing	**156**
Judicial decisions and decisions of administrative tribunals	156
Reports by the Auditor General and the ANAO	156
Purchasing and tendering compliance	**156**
Purchasing	156
Competitive tendering	157
Discretionary grants	157
Consultants	157
Advertising and market research	157

ACIAR values

We are committed to partnerships that:

- help reduce poverty
- respect each other's values, cultures and laws.

In our work we believe in:

- open, honest communication that is personally and culturally sensitive, within and beyond ACIAR
- scientific and professional excellence to guide decision making
- innovation and creativity within the context of the APS values
- efficient use of resources.

As an organisation we value:

- the commitment of our people and partners to the mission and work of ACIAR
- integrity, consultation, professionalism, fairness and ethics
- a satisfying workplace.

Management of human resources

Four-year perspective

Staff employed under the Public Service Act 1999

	2000–01	2001–02	2002–03	2003–04
Staff at 30 June	54	53	48	47
Staff (FTE)	51.8	49.6	45.7	44.3
Base salaries	$3,211,204	$3,387,216	$3,319,528	$3,362,474
Cessations	14	12	12	11
Staff turnover	26.9%	22.5%	23.3%	23.4%
Women	63%	58.5%	56.3%	57.4%
Part-time	16.7%	17%	14.6%	14.9%
Non-ongoing	13%	17%	16.7%	21.3%
Learning and development activities	$66,808	$58,513	$103,898	$85,596

Overseas staff

	2000–01	2001–02	2002–03	2003–04
Staff (FTE)	17	19	18.8	18.8
Base salaries	$554,956	$551,619	$569,828	$505,919
Learning and development activities	$241	$6,900	$8,561	$8,047

Cessations

	2000–01	2001–02	2002–03	2003–04
Retrenched/annulled			2	1
Promotions/ transfers	4	2		1
End of contract	6	5	4	1
Resigned	3	4	3	4
Retired	1	1	1	3
Leave without pay			2	1
Total	**14**	**12**	**12**	**11**

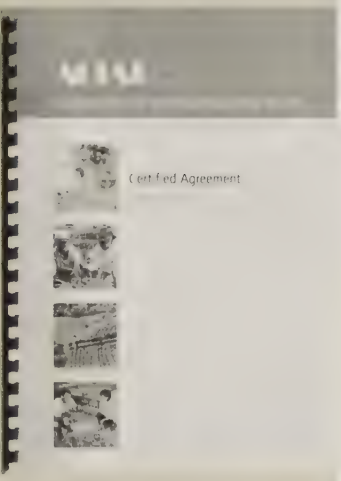
Performance Development and Appraisal Scheme (PDAS)

The PDAS operates on a 5-point rating scale and employees who are rated as Competent, Superior or Outstanding in the annual performance cycle receive an increment (where they are not on top of a salary range). In the cycle concluded in June 2004 there were 46 completed assessments, including 2 SES employees. Two non-SES employees were rated as outstanding, 26 employees as superior and 18 as competent. Of the 46 employees rated as competent or higher, 23 were advanced one salary point. There were no employees rated as unsatisfactory or requiring development.

Sue Allen, Personnel Administrator

Bonus for performance of organisation

Employees rated as competent or above in the performance cycle, and who worked for ACIAR for at least six months, received a bonus of $1,300 in recognition of ACIAR's achievements against the 2003–04 Operational Plan (as defined in Section 4 of the ACIAR Certified Agreement 2002–2005). Part-time employees received a pro rata payment. Payments totalled $54,381.



Variation to Certified Agreement

One of the outcomes of a Staff Workshop in November 2003 was an agreement by staff and management to simplify the performance management and recognition and reward schemes. This process required an amendment to the ACIAR Certified Agreement 2002–2005, and following a majority vote of 92% of eligible staff on 22 June 2004 the variation was approved by the Australian Industrial Relations Commission on 5 July 2004, to take effect for the final year of the Certified Agreement, 2004–05. Under the Certified Agreement two SES employees and three non-SES employees were covered by Australian Workplace Agreements at the end of June 2004.

Training and development

ACIAR spent $85,596 on learning and development opportunities for its Canberra-based employees, an average of $1,821 per employee. This figure does not include in-house training/workshops conducted by consultants or other ACIAR staff, or the attendance of research staff at conferences and seminars in Australia and overseas. ACIAR provides studies assistance for formal education and staff are encouraged to take up broader development opportunities, such as temporary secondment to affiliated organisations.

Commonwealth Disability Strategy (CDS)

ACIAR's Employer and Provider Roles include meeting the Centre's requirements under the CDS.

As an employer, the Centre is committed to ensuring that all people seeking employment have fair access to such opportunities.

Applicants for employment positions, with disabilities, are encouraged to identify their disability to ensure that the selection process accommodates any special needs they might have. Recruitment processes require selection panels to make provision for the needs of applicants with disabilities. Guidance and assistance to people seeking employment with ACIAR is available from the recruitment page on ACIAR's website.

ACIAR's Certified Agreement provides a framework for internal review of employment actions. Where complaints cannot be resolved through internal mechanisms, employees have access to the formal complaint resolution mechanisms available under the public service employment framework.

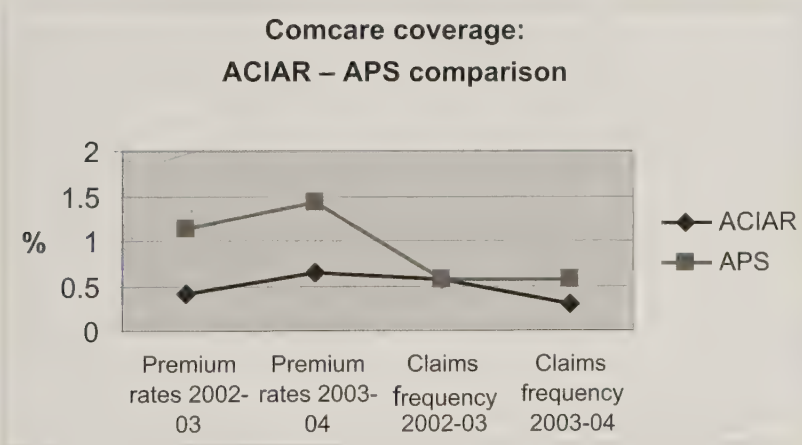
Occupational Health and Safety

There were no accidents or dangerous occurrences giving rise to issue of any notices or directions under the *OHS (Commonwealth Employment) Act 1991*.

The OHS Committee reported a number of matters to the ACIAR Consultative Council which were endorsed for attention. Two First Aid Officers were appointed, following training and certification by St Johns Ambulance.

The Certified Agreement provides for annual health assessments and flu injections for employees. Over half the staff took the opportunity to receive free flu injections prior to the onset of winter, and a large number of staff participated in the annual health assessment program. Workstation assessments are provided to all new employees by a qualified ergonomist/physiotherapist, and to employees who experience discomfort at their workstation.

ACIAR employees have access to a free Employee Assistance Program that provides professional services to management, employees and their families.



Workplace Diversity Plan

In June 2003 ACIAR launched a Workplace Diversity Plan 2003–2006 that reflects the Centre's continuing commitment to workplace diversity in its Certified Agreements, corporate plans and strategic planning and review processes.

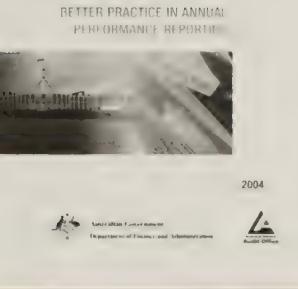
In its Certified Agreement and HR policies the Centre emphasises and encourages a balance between work and private life. A survey in March 2004 of perceptions relating to the use of family-friendly initiatives indicated 94 per cent of staff agreed that the policies and initiatives available supported their needs.

Recognition and Reward Scheme

Non-cash rewards valued at $3,000 were awarded to two staff for professional and/or personal development as a result of achieving a rating of Outstanding in the 2003–04 performance cycle.

Sick leave and absenteeism

Of a total of 11,500 working days in 2003–04, 3.8 per cent were taken in sick leave (2.8 per cent) and personal leave (1.0 per cent). This compares with a total of 3.6 per cent (sick leave 2.7 per cent and personal leave 0.9 per cent) in 2002–03.



External scrutiny and auditing

Judicial decisions and decisions of administrative tribunals

No decisions that impacted on ACIAR were made at either the judicial or administrative tribunal level during the 2003–04 financial year. There are no impending decisions relating directly to ACIAR that are outstanding or pending.

There were no significant developments relating to the increasing of, limiting of, or other changes to external scrutiny arrangements.

Reports by the Auditor General and the ANAO

The only ACIAR-specific audits completed in 2003–04 were the 2002–03 financial statements (unqualified) and the 2003–04 interim financial statements.

There was one cross-agency audit completed which included ACIAR: Audit Report No. 24, *Agency Management of Special Accounts*. This included 13 recommendations. Three are not applicable to ACIAR and the remaining 10 have been actioned.

Through its Audit Committee the Centre looks at the findings and recommendations of relevant ANAO reports for their applicability to ACIAR. These audits include the following cross-agency audits:

- Audit Report No. 3, *Management of Risk and Insurance*
- Audit Report No. 11, *Annual Performance Reporting*
- Audit Report No. 14, *Survey of Fraud Control Arrangements in APS Agencies*
- Audit Report No. 19, *Property Management*
- Audit Report No. 42, *Financial Delegations for the Expenditure of Public Monies in FMA Agencies.*

The Audit Committee also examines Better Practice Guides issued by the ANAO in regard to their applicability to improve systems and processes. Reports of interest were:

- *Public Sector Governance*
- *Management of Scientific Research and Development Projects in Commonwealth Agencies*
- *Better Practice in Annual Performance Reporting*

Purchasing and tendering compliance

Purchasing

The Centre complies with the *Commonwealth Procurement Guidelines* and the objectives of Commonwealth Procurement. ACIAR applies value for money as defined under section 4 (4.1), where "value for money is the core principle underpinning Australian Government procurement" in procurement processes. ACIAR has in place Director's Financial Instructions that include details on Delegations, the Spending of Public Moneys and dealing with Public Property. These instructions have been developed

in accordance with section 5 (5.1) of the Commonwealth Procurement Guidelines—dealing with Efficient, Effective and Ethical Use of Resources, requiring Directors to fulfil their obligations to the FMA Act 1997 and under the Guidelines by ensuring agencies have appropriate policies, procedures and guidelines in place governing procurement.

Due to the nature of the Centre's operations, with the majority of expenditure being project grants, and the small number of transactions, it is not cost-effective to implement purchasing performance measures, other than through the application of the Director's Financial Instructions. Most suppliers are now paid electronically, with electronic remittance advice of payments.

Competitive tendering

During 2003–04 ACIAR undertook the following tender processes:

- Travel Management Services. Carlson Wagonlit Travel was the successful tenderer for travel management services for the Foreign Affairs and Trade Portfolio. The new arrangements commenced on 5 April 2004.
- Airline Services. Separate route deals for both domestic and international travel were negotiated with various airlines as part of a portfolio arrangement.

ACIAR did not let any contracts for $100,000 or more where the contracted party or parties refused the Auditor General access to the said contractor's premises. No contracts were let in excess of $2,000 that were exempted from publication in the Purchasing and Disposal Gazette due to Freedom of Information exemptions.

Discretionary grants

The Centre did not issue any discretionary grants in 2003–04 or have any ongoing grants from previous years.

Consultants

ACIAR entered into 113 consultancy services contracts during 2003–04. The total expenditure on all consultancy services contracts during 2003–04 was $1.36m. External consultants were engaged to provide services that were related mainly to the research program. Additional information on consultancies let to the value of $10,000 or more is available upon request to ACIAR.

Advertising and market research

The Centre did not enter into contracts with any advertising agencies, market researchers or polling organisations or media advertising organisations. ACIAR did not enter into any direct marketing of information to the public. The Centre maintains mailing lists of project personnel and those requesting selected material.

Appendices

	Page
Appendix 1: Basis of authority	159
Appendix 2: ACIAR's outcomes and outputs framework	161
Appendix 3: ACIAR's active research projects 2003–04	162
Appendix 4: ACIAR publications 2003–04	174
Appendix 5: ACIAR staffing statistics	176
Appendix 6: ACIAR Freedom of Information	178
Appendix 7: Ecologically sustainable development and environmental performance	180
Appendix 8: Compliance checklist	185

Appendix 1: Basis of authority

ACIAR is governed by the *Australian Centre for International Agricultural Research Act 1982*, proclaimed on 3 June 1982 as Act No. 9 of 1982. The Act was described as 'An Act to encourage research for the purpose of identifying, or finding solutions to, agricultural problems of developing countries'.

Under Sections four to six of the Act ACIAR is established as a body corporate with the powers of a body corporate. It has a seal, and it may sue and be sued.

Our functions

ACIAR's role is described in section five of the ACIAR Act 1982.

(1) The functions of the Centre are:
- (a) to formulate programs and policies with respect to agricultural research for either or both of the following purposes
  - (i) identifying agricultural problems of developing countries
  - (ii) finding solutions to agricultural problems of developing countries
- (b) to commission agricultural research by persons or institutions (whether the research is to be conducted in Australia or overseas) in accordance with such programs and policies
- (c) to communicate to persons and institutions the results of such agricultural research
- (d) to establish and fund training schemes related to its research programs
- (e) to conduct and fund development activities related to its research programs
- (f) to fund international agricultural research centres.

(2) In performing its functions with respect to agricultural research, the Centre shall have regard to the need for persons or institutions in developing countries to share in that research.

(3) Nothing in this section authorises, or permits, the Centre to carry out research on its own behalf.

Our governing body

Part three of the ACIAR Act establishes the Board of Management as the governing body responsible for the management and control of the Centre and its affairs. The Act also defines the constitution of the Board, its delegations and the authority by which the Minister may give directions to the Board.

Our powers

ACIAR's powers are established through section 6 of the ACIAR Act 1982. The Centre has the powers of a body corporate:

(1) Subject to this Act, the Centre has power to do all things necessary or convenient to be done for or in connection with the performance of its functions.

(2) Without limiting the generality of subsection (1), the powers of the Centre include power to accept gifts, devises, bequests or assignments made to the Centre whether on trust or otherwise, and whether unconditionally or subject to a condition and, if a gift, devise, bequest or assignment is accepted by the Centre on trust or subject to a condition, to act as trustee or to comply with the condition, as the case may be.

(3) Notwithstanding anything contained in this Act, any money or other property held by the Centre upon trust or accepted by the Centre subject to a condition shall not be dealt with except in accordance with the obligations of the Centre as trustee of the trust or as the person who has accepted the money or other property subject to the condition, as the case may be.

Organisational structure (at June 2004)

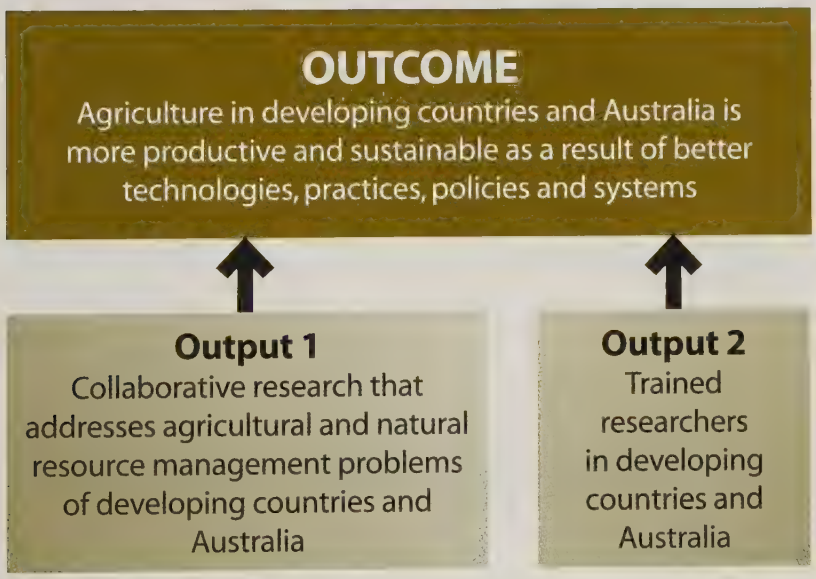
Appendix 2: ACIAR's outcomes and outputs framework

ACIAR's outcome, as specified in the Portfolio Budget Statement, describes the Centre's role within the context of Australia's development assistance program.

The achievement of this outcome continues to rely on the contribution of two outputs:

- Output 1 aggregates the activities of bilateral and multilateral research and development (R&D) programs that address the agreed priorities of developing countries
- Output 2 focuses on capacity-building activities delivered through formal training of researchers. (In addition to formal training, much training takes place through involvement in R&D projects themselves.)

Outcome and outputs structure


OUTCOME
Agriculture in developing countries and Australia is more productive and sustainable as a result of better technologies, practices, policies and systems
Output 1
Collaborative research that addresses agricultural and natural resource management problems of developing countries and Australia
Output 2
Trained researchers in developing countries and Australia

Corporate and operational planning

The Corporate Plan 2001–06 outlines the challenges for ACIAR in regard to its operating environment. The implications of these challenges and the critical success factors in addressing these are spelt out together with linkages to strategies to meet these challenges. The section 'Tracking performance: against the 2001–06 Corporate Plan', beginning on page 139, reports against these strategies.

In the lead-up to 2003–04, ACIAR has published a formal Annual Operational Plan, to guide external stakeholders through the priority areas for research in partner countries. Key research programs in each country are also identified, creating a two-way management matrix, against which funds are allocated.

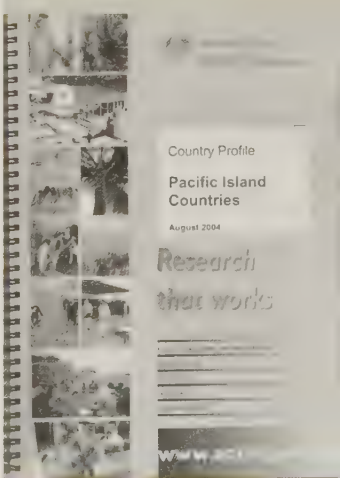
Appendix 3: ACIAR's active research projects 2003–04*

Bilateral projects

	Bangladesh
CIM/2001/039	Integrated management of Botrytis Grey Mould of chickpea in Bangladesh and Australia
LWR/1998/005	Arsenic transfer in water-soil-crop environments of Bangladesh and Australia
	Bhutan
CP/1997/101	A survey of fruit flies in Bhutan and a field control program for *Bactrocera minax* (Enderlein) (the Chinese citrus fly)
	Burma (Myanmar)
AS1/2002/041	Ecologically-based management of rodents in rain-fed cropping systems in Myanmar
AS1/2002/042	Control of Newcastle disease and identification of major constraints in village chicken production systems in Myanmar
	Cambodia
AS1/1996/160	Control of fasciolosis in cattle and buffaloes in Indonesia, Philippines and Cambodia
AS1/2002/099	Development of a model for the control of fasciolosis in cattle and buffaloes in the Kingdom of Cambodia
ASEM/2000/037	Farmer-based adaptive rodent management, extension and research system in Cambodia
ASEM/2000/109	Farming systems research for crop diversification in Cambodia and Australia
CIM/1999/048	Increased productivity of rice-based cropping systems in Lao PDR, Cambodia and Australia
CTE/2003/007	Cambodian Agricultural Research Fund
FIS/2002/068	Improving feeds and feeding for small scale aquaculture in Vietnam and Cambodia
FIS/2003/003	Stock structure of two important Mekong River carp species (*Henicorynchus* spp.)
LWR/2001/051	Assessing land suitability for crop diversification in Cambodia and Australia
	China
ADP/1998/128	Achieving food security in China—implications of WTO accession
ADP/2000/120	Institutions and policies for improving water allocation and management in the Yellow River Basin, China
ADP/2002/021	Sustainable land use change in the north west provinces of China
ADP/2002/049	Outlying developing countries in world food consumption patterns
AS1/1997/069	The treatment of wool scouring effluents in Australia, China and India
AS1/1998/026	Lucerne adapted to adverse environments in China and Australia
AS1/2002/108	Improved management of small mammals in Tibetan grasslands
AS2/1998/035	Ruminant production in the red soils region of southern China and in northern Australia
AS2/2001/029	Development of a knowledge system for the selection of forages for farming systems in the tropics
ASEM/1998/060	Chinese wool textile mills: economic analysis of fibre-input/textile-product selection and new processing technologies
CIM/1996/006	Wheat improvement in Sichuan Province: application of modern breeding technologies
CIM/1999/072	Oilseed Brassica improvement in China, India and Australia

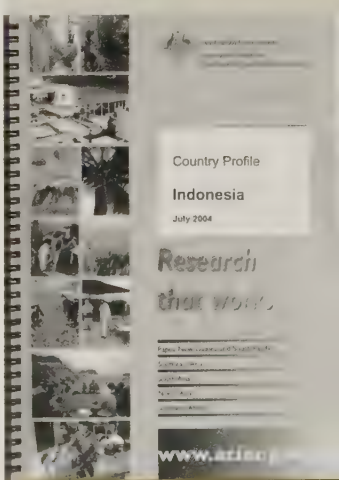
** Projects may be active in more than one country.*

CIM/2000/035	Increased productivity of cool season pulses in rain-fed agricultural systems of China and Australia
CIM/2000/038	Use and improvement of sugarcane germplasm
CS1/1995/129	High yielding anthracnose-resistant *Stylosanthes* for agricultural systems in India and China
CP/2002/016	Improving the implementation of integrated crop management in Brassica vegetables through a decision support toolkit based on enduser needs in China and Australia
CS2/1996/087	Quarantine decision support and training aids for China and Australia
FST/1996/125	Development of germplasm and production systems for cold tolerant eucalypts for use in cool regions of southern China and Australia
FST/1999/042	Growth stresses in eucalypts: evaluation and development of measurement techniques
FST/2001/086	Assessment of the potential of *Pinus radiata* for ecological restoration of the Yangtze River catchment in Aba Prefecture, Sichuan, China
LWR/1998/124	Development of technologies to alleviate soil acidification in legume-based production systems in the tropics of Asia and Australia
LWR/1998/130	Water resources and salinity management in agricultural areas of inland northern China and northern Australia
LWR/2001/001	Improving main system water management in China: A demonstration project in the Zhanghe Irrigation Scheme
LWR/2002/018	Regional impacts of re-vegetation on water resources of the Loess Plateau, China, and the Middle and Upper Murrumbidgee Catchment, Australia
LWR/2002/113	Application of innovative irrigated cropping and soil filtration technology for wastewater reuse and treatment in China
PHT/1998/137	Integrating effective phosphine fumigation practices into grain storage systems in China, Vietnam and Australia
PHT/1998/140	Postharvest handling and disease control in melons in China and Australia
PHT/1999/081	Reducing spoilage and contamination risks of fresh vegetables in China and Australia
SMCN/1999/094	Improving the productivity and sustainability of rain-fed farming systems for the western Loess Plateau of Gansu Province
SMCN/2002/093	Intensifying production of grain and fodder in Central Tibet farming systems
LWR2/1996/143	Sustainable mechanised dryland grain production
	Democratic People's Republic of Korea
CP/2002/062	The development of integrated pest management for Brassica crops in DPRK and its improvement in Australia
SMCN/2001/048	Legumes and reduced tillage for rice and maize based cropping in the Democratic Peoples Republic of Korea (DPRK)
	East Timor
CIM/2000/160	Seeds of Life—East Timor
CTE/2000/164	Rehabilitation of the Agriculture Faculty of the National University of East Timor
	Fiji
ADP/1996/136	Fiji sugar industry: assessing international sugar market reforms and their impacts and defining appropriate responses
ADP/1998/095	An investigation of the determinants of food choice in Fiji and their role in demand trends for high nutritional valued foods and nutrition security
ADP/2002/047	Trade liberalisation, agriculture and land degradation in Fiji: implications for sustainable development policies
AS1/2001/054	The identification of constraints and possible remedies to livestock production by zoonotic diseases in the South Pacific



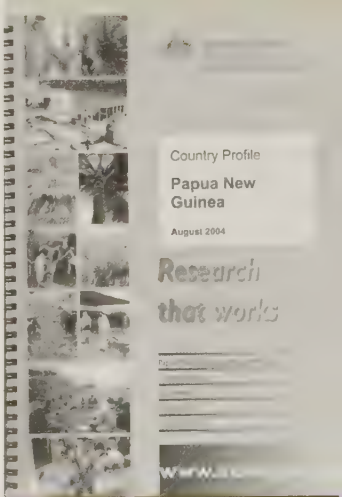
ASEM/2001/036	Maximising the economic benefits to Pacific Island Nations from management of migratory tuna stocks
CP/2005/044	Taro beetle management in Papua New Guinea and Fiji
FIS/1997/031	Pearl oyster resource development in the Western Pacific
FIS/2001/075	Sustainable aquaculture development in Pacific Islands region and northern Australia
FST/2001/045	Development of forest health surveillance systems for South Pacific countries and Australia
SMCN/2001/038	Management of animal waste to improve the productivity of Pacific farming systems
	India
ADP/2000/004	International food safety regulation and processed food exports from developing countries: A comparative study of India and Thailand
ADP/2001/014	Improving water resource management in India's agriculture: Search for effective institutional arrangements and policy frameworks
ADP/2002/049	Outlying developing countries in world food consumption patterns
AS1/1997/058	Increasing the productivity of cattle in India and Australia with rumen fungal treatments
AS1/1997/069	The treatment of wool scouring effluents in Australia, China and India
AS1/1997/115	Increasing efficiency and productivity of ruminants in India and Australia by the use of protected nutrient technology
AS1/2001/005	Salinity reduction in tannery effluents in India and Australia
AS1/2002/038	Improved productivity, profitability and sustainability of sheep production in Maharashtra, India through genetically enhanced prolificacy, growth and parasite resistance
AS2/2001/029	Development of a knowledge system for the selection of forages for farming systems in the tropics
CIM/1996/007	Traits for yield improvement of chickpea in drought-prone environments of India and Australia
CIM/1996/025	Physiological and genetic approaches for the development of waterlogging tolerance in wheat on sodic/alkaline and neutral soils in India and Australia.
CIM/1999/072	Oilseed Brassica improvement in China, India and Australia
CIM/2002/030	Improving subtropical citrus production in Sikkim and Australia
CS1/1995/129	High yielding anthracnose-resistant *Stylosanthes* for agricultural systems in India and China
CS1/1997/114	More efficient breeding of drought resistant peanuts in India and Australia
FIS/2002/001	Developing aquaculture in degraded inland areas in India and Australia
FST/1995/106	Improving and maintaining productivity of eucalypt plantations in India and Australia
FST/1998/096	Domestication of Australian trees for reforestation and agroforestry systems in developing countries
LWR/1998/017	Integrative technologies for assessing the extent and cause of degradation in arid community rangelands
PHT/2001/026	Drying systems to improve grain quality in North East India
SMCN/2000/089	Permanent beds for irrigated rice-wheat and alternative cropping systems in north-west India and south-east Australia
	Indonesia
ADP/2000/103	Contract farming, smallholders, and rural development in East Java, Bali and Lombok
ADP/2000/072	Improving resource use efficiency in the coconut industry of North Sulawesi and its national implications

ADP/2000/126	Microfinance for agricultural producers in West Nusa Tenggara (WNT) Province, Indonesia: issues and opportunities for a sustainable financial intermediary system
ADP/2002/012	Technical change in Thai and Indonesian agriculture: measurement, socioeconomic impact and policy implications
AS1/1996/160	Control of fasciolosis in cattle and buffaloes in Indonesia, Philippines and Cambodia
AS1/1997/027	Genetic and immunological characterisation of high resistance to internal parasites in Indonesian Thin Tail Sheep
AS1/2000/009	Development of diagnostic and control methodologies for animal trypanosomiasis (Surra) in Papua New Guinea, Indonesia, the Philippines and Australia
AS1/2000/029	Production of a vaccine for the control of Jembrana disease in Indonesia
AS1/2000/083	Development of a vaccine for the control of Gumboro in village and small poultry holdings in Indonesia
AS2/1999/060	Control of bees and bee mites in Indonesia and the Philippines
AS2/2000/103	Developing an integrated production system for Bali cattle in the eastern islands of Indonesia
AS2/2000/124	Prospects for improved integration of high quality forages in the crop-livestock systems of Sulawesi, Indonesia
AS2/2000/125	Optimising crop-livestock systems in West Nusa Tenggara Province, Indonesia
AS2/2000/157	Leucaena management in West Timor and Cape York
AS2/2001/029	Development of a knowledge system for the selection of forages for farming systems in the tropics
ASEM/2002/060	Economic potential of land-use change and forestry for carbon sequestration and poverty reduction
CIM/1996/140	Biological threats to *Saccharum* germplasm and sugar production in Papua New Guinea, Indonesia and Australia
CIM/1998/061	Coconut tissue culture for clonal propagation and safe germplasm exchange
CP/1994/126	Cassava safety: development and evaluation of simple tests of the cyanogenic potential of cassava flour and cassava tubers
CP/2000/043	Huanglongbing management for Indonesia, Vietnam and Australia
CP/2000/090	*Liriomyza huidobrensis* leaf miner: developing effective pest management strategies for Indonesia and Australia
CP/2000/094	Diagnosis and control of soilborne fungal diseases of plants in Indonesia
CS2/2000/093	Development of a diagnostic key for tropical rice disorders
FIS/1997/022	Remediation and management of degraded earthen shrimp ponds in Indonesia and Australia
FIS/1997/073	Improved hatchery and grow-out technology for grouper aquaculture in the Asia-Pacific region
FIS/2000/061	Development and delivery of practical disease control programs for small-scale shrimp farmers in Indonesia, Thailand and Australia
FIS/2000/062	Artisanal shark and ray fisheries in eastern Indonesia: their socioeconomic and fisheries characteristics and relationship to Australian resources
FIS/2001/079	A review of Indonesia's Indian Ocean tuna fisheries and extension of catch monitoring at the key off-loading ports
FIS/2002/019	Management and policy frameworks for illegal, unreported and unregulated (IUU) fishing in Indonesian and Philippine waters



FIS/2002/083	An assessment of the patterns of genetic diversity and stock structure in wild populations of the Giant Freshwater Prawn (*Macrobrachium rosenbergii*): a resource for improving culture stocks in Indonesia and the Philippines
FIS/2002/111	Culture, capture conflicts: sustaining fish production and livelihoods in Indonesian reservoirs
FIS/2003/037	Artisanal shark and ray fisheries in eastern Indonesia and their relationships with Australian resources
FST/1998/096	Domestication of Australian trees for reforestation and agroforestry systems in developing countries
FST/2000/001	Impacts of fire and its use for sustainable land and forest management in Indonesia and northern Australia
FST/2000/123	Heart rots in plantation hardwoods in Indonesia and southeast Australia
PHT/1997/017	Reducing aflatoxin in peanuts using agronomic management and bio-control strategies in Indonesia and Australia
PHT/1997/161	Market based analysis of constraints to banana industry development in Indonesia and Australia
PHT/2000/102	Selection for improved quality and resistance to *Phytophthora* pod rot, cocoa pod borer and vascular-streak dieback in cocoa in Indonesia
SMCN/1999/005	Improved soil management on rain-fed vertisols in Nusa Tenggara
SMCN/2002/033	Seasonal climate forecasting for better irrigation system management in Lombok
	Kiribati
AS1/2001/054	The identification of constraints and possible remedies to livestock production by zoonotic diseases in the South Pacific
ASEM/2001/036	Maximising the economic benefits to Pacific Island nations from management of migratory tuna stocks
FIS/1997/031	Pearl oyster resource development in the western Pacific
FIS/2001/075	Sustainable aquaculture development in Pacific Islands region and northern Australia
LWR/2001/050	Equitable groundwater management for the development of atolls and small islands
SMCN/2001/038	Management of animal waste to improve the productivity of Pacific farming systems
	Lao PDR
AS1/2003/001	Management of CSF and FMD at the village level in Lao PDR
ASEM/2001/107	Accelerating the impacts of participatory research and extension on shifting cultivation farming systems in Laos
CIM/1999/048	Increased productivity of rice-based cropping systems in Lao PDR, Cambodia and Australia
CIM/2001/027	Adaptation of low-chill temperate fruits to Australia, Thailand, Laos and Vietnam
CTE/2000/165	Facilitating farmer uptake of ACIAR project results: World Vision collaborative program
FIS/2003/003	Stock structure of two important Mekong River carp species (*Henicorynchus* spp.)
FST/1996/005	Development of domestication strategies for commercially important species of Meliaceae
FST/1997/024	Insect resistance and silvicultural control of the shoot borer, *Hypsipyla robusta*, feeding on species of Meliaceae in Southeast Asia and Australia
FST/1998/096	Domestication of Australian trees for reforestation and agroforestry systems in developing countries
LWR/1997/150	Salinity management in southeastern Australia, northeastern Thailand and Lao PDR

	Malaysia
FST/1996/005	Development of domestication strategies for commercially important species of Meliaceae
FST/1997/024	Insect resistance and silvicultural control of the shoot borer, *Hypsipyla robusta*, feeding on species of Meliaceae in Southeast Asia and Australia
PHT/1994/045	Control of ripening in papaya and mango by genetic engineering
PHT/1999/040	Genetic engineering of pineapples with blackheart resistance
	Mozambique
CP/1994/126	Cassava safety: development and evaluation of simple tests of the cyanogenic potential of cassava flour and cassava tubers
	Nepal
CIM/1999/064	Lentil and Lathyrus in the cropping systems of Nepal: improving crop establishment and yield of relay and post-rice-sown pulses in the terai and mid-hills.
	Pakistan
AS2/2001/029	Development of a knowledge system for the selection of forages for farming systems in the tropics
CP/1995/003	Control of Gemini virus diseases of cotton and tomato in Pakistan and Australia
FST/1998/036	Domestication of Australian trees for reforestation and agroforestry systems in developing countries
LWR/2000/013	Sustainable agriculture in saline environments through serial biological concentration
SMCN/2002/034	Refinement and adoption of permanent raised bed technology for the irrigated maize-wheat cropping system in Pakistan
	Papua New Guinea
AS1/2000/009	Development of diagnostic and control methodologies for animal trypanosomiasis (Surra) in Papua New Guinea, Indonesia, the Philippines and Australia
AS1/2001/054	The identification of constraints and possible remedies to livestock production by zoonotic diseases in the South Pacific
AS2/2001/077	Poultry feeding systems in Papua New Guinea
ASEM/2001/036	Maximising the economic benefits to Pacific Island nations from management of migratory tuna stocks
ASEM/2001/047	Improving the marketing system for fresh produce of the highlands of Papua New Guinea
ASEM/2001/055	Improving yield and economic viability of peanut production in Papua New Guinea and Australia using integrated management and modelling approaches
ASEM/2002/014	Improving productivity and the participation of youth and women in the Papua New Guinea cocoa, coconut and oil palm industries
ASEM/2002/050	Economic performance and management of the Gulf of Papua prawn fishery
ASEM/2003/010	Farmer evaluation and multiplication of sweet potato varieties on the North Coast of Papua New Guinea
CIM/1996/140	Biological threats to *Saccharum* germplasm and sugar production in Papua New Guinea, Indonesia and Australia
CIM/1998/061	Coconut tissue culture for clonal propagation and safe germplasm exchange
CP/1994/043	Virus indexing and DNA fingerprinting for the international movement and conservation of taro germplasm
CP/1996/091	Biological control of *Chromolaena odorata* in Indonesia, Papua New Guinea and the Philippines
CP/2000/044	Taro beetle management in Papua New Guinea and Fiji

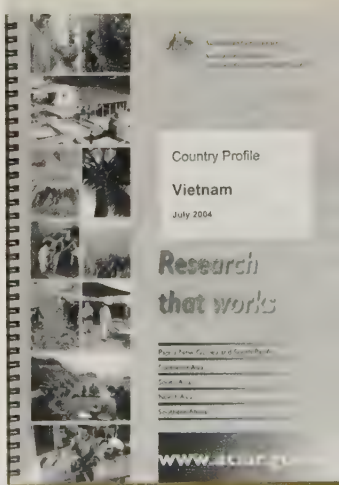


CP/2001/032	Impact and management of *Oribius* weevils in Papua New Guinea
CP/2002/013	Biology, damage levels and control of red-banded mango caterpillar in Papua New Guinea and Australia
CTE/2000/162	Scientific communication in Papua New Guinea
FIS/1998/024	The biology, socioeconomics and management of the barramundi fishery in the Fly River and adjacent coast of Papua New Guinea
FIS/2001/034	Inland pond aquaculture in Papua New Guinea: assessment of the industry and evaluation of smallholder research and development needs
FIS/2001/075	Sustainable aquaculture development in Pacific Islands region and northern Australia
FIS/2002/056	Biology and status of the prawn stocks and trawl fishery in the Gulf of Papua
FST/1998/113	Development of a sustainable, community-based essential oil industry in the Western Province of Papua New Guinea using the region's woody-plant species
FST/1998/115	Domestication of Papua New Guinea's indigenous forest species
FST/1998/118	Planning methods for sustainable management of timber stocks in Papua New Guinea's forests
FST/2002/010	Domestication and commercialisation of multi-purpose indigenous trees and shrubs for food and other products in Papua New Guinea, the Solomon Islands and Queensland: a feasibility study with special reference to Canarium nut
PHT/1995/136	Cocoa fermentation, drying and genotype product quality assessment
PHT/2001/016	Microbial contaminants associated with sago processing and storage in Papua New Guinea
SMCN/1998/028	Diagnosis and correction of nutritional disorders of yams
SMCN/2000/046	Overcoming magnesium deficiency in oil palm crops on volcanic ash soils of Papua New Guinea
	Philippines
AS1/1996/160	Control of fasciolosis in cattle and buffaloes in Indonesia, Philippines and Cambodia
AS1/2000/009	Development of diagnostic and control methodologies for animal trypanosomiasis (Surra) in Papua New Guinea, Indonesia, the Philippines and Australia
AS2/1998/025	Performance evaluation and genetic improvement of ruminant animals in the Philippines
AS2/1999/060	Control of bees and bee mites in Indonesia and the Philippines
AS2/2000/098	Bovine babesiosis and anaplasmosis in the Philippines: developing a research and diagnostic capability
AS2/2001/029	Development of a knowledge system for the selection of forages for farming systems in the tropics
ASEM/1997/041	Enhancing the contribution of livestock within smallholder mixed farming systems in the Philippines
ASEM/1998/052	Enhancing farmer adoption of simple conservation practices: Landcare in the Philippines and Australia
ASEM/2000/088	Redevelopment of a timber industry following extensive land clearing
ASEM/2000/101	Improving the efficiency of the agribusiness supply chain and quality management for small agricultural producers in Mindanao
ASEM/2000/107	Future prospects for smallholder poultry producers in the Philippines: ducks and native chickens
ASEM/2001/108	Improving delivery of extension services in the Philippines
CIM/1998/061	Coconut tissue culture for clonal propagation and safe germplasm exchange

CIM/2001/049	Development of PRSV-P resistant papaya genotypes by introgression of genes from wild *Carica* species
CS2/2000/093	Development of a diagnostic key for tropical rice disorders
FIS/1997/073	Improved hatchery and grow-out technology for grouper aquaculture in the Asia-Pacific region
FIS/2002/019	Management and policy frameworks for illegal, unreported and unregulated (IUU) fishing in Indonesian and Philippine waters
FIS/2002/083	An assessment of the patterns of genetic diversity and stock structure in wild populations of the Giant Freshwater Prawn (*Macrobrachium rosenbergii*): a resource for improving culture stocks in Indonesia and the Philippines
FST/1997/024	Insect resistance and silvicultural control of the shoot borer, *Hypsipyla robusta*, feeding on species of Meliaceae in Southeast Asia and Australia
FST/1998/096	Domestication of Australian trees for reforestation and agroforestry systems in developing countries
FST/2000/127	Improving and maintaining productivity of bamboo for quality timber and shoots in Australia and the Philippines
LWR/2000/084	Minimising the off-site impact of pesticides from agricultural systems: a risk based approach
LWR/2001/003	Integrated watershed management for sustainable soil and water resources management of the Inabanga watershed, Bohol Island, Philippines
PHT/1994/045	Control of ripening in papaya and mango by genetic engineering
PHT/1997/094	Management of postharvest diseases of subtropical and tropical fruit using their natural resistance mechanisms
PHT/1999/040	Genetic engineering of pineapples with blackheart resistance
PHT/2000/081	Bioremediation technology for insecticide residues in horticulture
SMCN/2000/060	Development of an interactive diagnostic key for sweet potato disorders
SMCN/2000/114	Evaluating biofumigation for soil-borne disease management in tropical vegetable production
	Samoa
ASEM/2001/036	Maximising the economic benefits to Pacific Island nations from management of migratory tuna stocks
CP/1994/043	Virus indexing and DNA fingerprinting for the international movement and conservation of taro germplasm
FIS/2001/075	Sustainable aquaculture development in Pacific Islands region and northern Australia
FIS/2001/085	Integration of broodstock replenishment with community-based management to restore trochus fisheries
FST/2001/045	Development of forest health surveillance systems for South Pacific countries and Australia
PHT/2001/023	Horticulture industry development for market-remote communities
	Solomon Islands
ASEM/2001/036	Maximising the economic benefits to Pacific Island nations from management of migratory tuna stocks
FIS/1997/031	Pearl oyster resource development in the western Pacific
FIS/2001/075	Sustainable aquaculture development in Pacific Islands region and northern Australia
FST/2002/010	Domestication and commercialisation of multi-purpose indigenous trees and shrubs for food and other products in Papua New Guinea, the Solomon Islands and Queensland: a feasibility study with special reference to Canarium nut

	Southern Africa
AS2/1996/149	Tropical forage and ley-legume technology for sustainable grazing and cropping systems in southern Africa
AS2/1999/036	Developing profitable beef business systems for previously disadvantaged farmers in South Africa
AS2/2001/029	Development of a knowledge system for the selection of forages for farming systems in the tropics
FST/1996/124	High performance eucalypts and interspecific hybrids for marginal lands in south and eastern South Africa and southeastern Australia
FST/2003/002	Development and evaluation of sterile triploids and polyploid breeding methodologies for commercial species of Acacia in Vietnam, South Africa and Australia
	Sri Lanka
FIS/2001/030	Management strategies for enhanced fisheries production in Sri Lankan and Australian lakes and reservoirs—extension project
FST/1998/096	Domestication of Australian trees for reforestation and agroforestry systems in developing countries
PHT/1997/094	Management of postharvest diseases of subtropical and tropical fruit using their natural resistance mechanisms
	Thailand
ADP/2000/004	International food safety regulation and processed food exports from developing countries: a comparative study of India and Thailand
ADP/2002/012	Technical change in Thai and Indonesian agriculture: measurement, socioeconomic impact and policy implications
ASEM/2001/095	Institutional strengthening for integrated water resource management in Thailand
CIM/2001/027	Adaptation of low-chill temperate fruits to Australia, Thailand, Laos and Vietnam.
CP/1997/079	Integrated control of mango insect pests using green ants as a key element
CTE/2000/165	Facilitating farmer uptake of ACIAR project results: World Vision collaborative program
FIS/1996/098	Diagnostic tests and epidemiological probes for prawn viruses in Thailand and Australia
FIS/1997/073	Improved hatchery and grow-out technology for grouper aquaculture in the Asia-Pacific region
FIS/2000/061	Development and delivery of practical disease control programs for small-scale shrimp farmers in Indonesia, Thailand and Australia
FIS/2003/003	Stock structure of two important Mekong River carp species (*Henicorynchus* spp.)
FST/1994/019	Genetic diversity and propagation of mangroves
FST/1996/005	Development of domestication strategies for commercially important species of Meliaceae
FST/1997/024	Insect resistance and silvicultural control of the shoot borer, *Hypsipyla robusta*, feeding on species of Meliaceae in Southeast Asia and Australia
FST/1998/096	Domestication of Australian trees for reforestation and agroforestry systems in developing countries
LWR/1997/150	Salinity management in southeastern Australia, northeastern Thailand and Lao PDR
LWR/1998/119	Impact of heavy metals on sustainability of fertilisation and waste recycling in peri-urban and intensive agriculture in Southeast Asia
LWR/1998/124	Development of technologies to alleviate soil acidification in legume-based production systems in the tropics of Asia and Australia
PHT/1993/877	Low cost disinfestation systems for fruit
PHT/1995/134	Management of *Phytophthora* diseases of durian

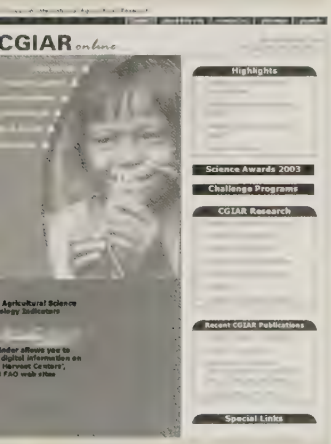
	Tonga
AS1/2001/054	The identification of constraints and possible remedies to livestock production by zoonotic diseases in the South Pacific
FIS/2001/075	Sustainable aquaculture development in Pacific Islands region and northern Australia
FST/2001/045	Development of forest health surveillance systems for South Pacific countries and Australia
LWR/2001/050	Equitable groundwater management for the development of atolls and small islands
SMCN/1998/028	Diagnosis and correction of nutritional disorders of yams
SMCN/2001/038	Management of animal waste to improve the productivity of Pacific farming systems
	Tuvalu
SMCN/2001/038	Management of animal waste to improve the productivity of Pacific farming systems
	Vanuatu
FIS/2001/075	Sustainable aquaculture development in Pacific Islands region and northern Australia
FIS/2001/085	Integration of broodstock replenishment with community-based management to restore trochus fisheries
FST/2001/045	Development of forest health surveillance systems for South Pacific countries and Australia
SMCN/1998/028	Diagnosis and correction of nutritional disorders of yams
	Vietnam
ADP/1997/092	Impacts of alternative policy options on the agricultural sector in Vietnam
ADP/2000/018	The economics of developing reservoir aquaculture in Vietnam
ADP/2001/066	Strengthening agricultural market information activities in Vietnam
AS2/2001/029	Development of a knowledge system for the selection of forages for farming systems in the tropics
AS2/2002/078	Improved beef production in central Vietnam
AS2/2002/079	Utilisation of local ingredients in commercial feeds for pigs
CIM/1995/110	Soybean variety adaptation and improvement in Vietnam and Australia
CIM/1998/061	Coconut tissue culture for clonal propagation and safe germplasm exchange
CIM/2001/027	Adaptation of low-chill temperate fruits to Australia, Thailand, Laos and Vietnam
CP/1997/079	Integrated control of mango insect pests using green ants as a key element
CP/1998/005	Managing pest fruit flies to increase production of fruit and vegetable crops in Vietnam
CP/1998/018	Bioherbicide development for cereals in integrated weed management
CP/2000/043	Huanglongbing management for Indonesia, Vietnam and Australia
CTE/2000/165	Facilitating farmer uptake of ACIAR project results: World Vision collaborative program
FIS/2001/013	Culture-based and capture fisheries development and management in reservoirs in Vietnam
FIS/2002/068	Improving feeds and feeding for small scale aquaculture in Vietnam and Cambodia
FIS/2003/003	Stock structure of two important Mekong River carp species (*Henicorynchus* spp.)
FST/1994/019	Genetic diversity and propagation of mangroves



FST/1996/005	Development of domestication strategies for commercially important species of Meliaceae
FST/1997/024	Insect resistance and silvicultural control of the shoot borer, *Hypsipyla robusta*, feeding on species of Meliaceae in Southeast Asia and Australia
FST/1998/096	Domestication of Australian trees for reforestation and agroforestry systems in developing countries
FST/2000/003	Mixed species plantations of high-value trees for timber production and enhanced community services in Vietnam and Australia
FST/2003/002	Development and evaluation of sterile triploids and polyploid breeding methodologies for commercial species of Acacia in Vietnam, South Africa and Australia
LWR1/1998/034	System-wide water management in publicly managed irrigation schemes in Vietnam
LWR/1998/119	Impact of heavy metals on sustainability of fertilisation and waste recycling in peri-urban and intensive agriculture in Southeast Asia
LWR/2002/085	Utilising basic soil data for the sustainable management of upland soils in Australia and Vietnam
PHT/1993/877	Low cost disinfestation systems for fruit
PHT/1995/134	Management of *Phytophthora* diseases of durian
PHT/1996/004	Monitoring mycotoxins and pesticides in grain and food production systems for risk management in Vietnam and Australia
PHT/1998/137	Integrating effective phosphine fumigation practices into grain storage systems in China, Vietnam and Australia
	Zimbabwe
AS2/1996/149	Tropical forage and ley-legume technology for sustainable grazing and cropping systems in southern Africa
AS2/1999/063	Tick-borne diseases: Delivery of user-friendly and effective vaccine and diagnostics

Multilateral projects

ADP/2001/092	Fish in food: The critical role of fish in world food issues
ADP/2001/105	Can decentralisation work for forests and the poor? Policy research to promote sustainable forest management, equitable economic development, and secure local livelihoods in Indonesia
ADP/2002/114	Rural poor and smallholders in western China under WTO: A regional and community level analysis
AS1/1997/133	Sustainable endoparasite control for small ruminants in Southeast Asia
AS1/1998/054	Poverty alleviation and food security through improving the sweet potato-pig systems in Indonesia and Vietnam
AS2/1999/062	Improving the quality of pearl millet residues for livestock
CIM/1998/014	Increasing yield potential in wheat: complementing conventional breeding by application of novel physiological and germplasm strategies
CIM/2000/002	Development of advanced technologies for germplasm conservation of tropical fruit species
CIM/2000/039	Impact of migration and/or off-farm employment on roles of women and appropriate technologies in Asian and Australian mixed farming systems
CIM/2000/066	Host resistance, epidemiology and integrated management of faba bean, chickpea and lentil diseases
CIM/2000/078	Conservation, evaluation and utilisation of plant genetic resources from Central Asia and the Caucasus
CIM/2002/106	Fertilisation-independent formation of embryo, endosperm and pericarp for apomictic hybrid rice



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CIM/2004/003	Plant health management for faba bean, chickpea and lentils
CIM/2004/004	Plant genetic resource conservation, documentation and utilisation in central Asia and the Caucasus
CP/1999/007	Developing disease management capacity in Vietnam
CP/2001/068	Technical support for regional plant genetic resources development in the Pacific
CS2/1998/078	Sustainable integrated management of whiteflies as pests and vectors of plant viruses in Asia
FIS/1998/013	Development of new artisanal fisheries based on the capture and culture of postlarval coral reef fish
FIS/1999/025	Optimal release strategies for restocking and stock enhancement of the tropical sea cucumber, sandfish (*Holothuria scabra*)
FIS/2002/036	Development of the Aquaculture Compendium
FST/1999/035	The impact of changing agroforestry mosaics on catchment water yield and quality in Southeast Asia
FST/2001/020	Alternatives to slash and burn in SE Asia, phase 3: Facilitating development of agroforestry systems
LWR/2000/030	Growing more rice with less water: Increasing water productivity in rice-based cropping systems
PHT/2000/080	Selection for peanut varieties with low aflatoxin risk
SMCN/1999/003	Integrated nutrient management in tropical cropping systems: improved capabilities in modelling and recommendations
SMCN/1999/004	Improving phosphorus availability in cropping systems in sub-Saharan Africa
SMCN/2000/173	Improved fertiliser recommendations and policy for dry regions of southern Africa
SMCN/2001/028	Development and scaling out of targeted recommendations for smallholder maize systems in Southern Africa through integrating farmer participatory research and simulation modeling (Risk Management Project 2)
SMCN/2002/028	Stress tolerant wheat and maize for Afghanistan: Seeds of strength

Appendix 4: ACIAR publications 2003–04

Monographs

Nos 100 and 100a *Field methods for rodent studies in Asia and the Indo-Pacific region.* Eds KP Aplin, PR Brown, J Jacob, CJ Krebs & GR Singleton. 2003. 223 pp. Hard copy and CD-Rom versions.

No. 102 *Lantana: current management status and future prospect.* Eds MD Day, CJ Wiley, J Playford & MP Zalucki. 2003. 128 pp.

Nos 103–106 *Developing agricultural solutions with smallholder farmers: how to get started with participatory approaches.* PM Horne & WW Stür. Lao, Vietnamese, Chinese and Khmer language versions. Co-published with CIAT. 2004.

No. 107 *Developing forage technologies with smallholder farmers: how to select the best varieties to offer farmers in Southeast Asia.* PM Horne & WW Stür. Khmer language version. Co-published with CIAT. 2004.

No. 108 *Pig husbandry in New Guinea.* R Hide. 2003. 291 pp.

No. 109 *Community-based resource planning: studies from Zimbabwe and northern Australia.* Eds RN Thwaites, JL Carter & PL Norman. 2004. 126 pp.

Proceedings

No. 111 *Eucalypts in Asia* (Proceedings of an international conference held in Zhanjiang, Guangdong, People's Republic of China, 7–11 April 2003). Ed. JW Turnbull. 2003. 265 pp.

No. 112 *Breeding of drought-resistant peanuts* (proceedings of a collaborative review meeting held on 25–27 Feburary 2002 at Hyderabad, Andhra Pradesh, India). Eds AW Cruickshank, NC Rachaputi, GC Wright & SN Nigam. 2003. 103 pp.

No. 113 *Agriculture: new directions for a new nation East Timor (Timor-Leste)* (proceedings of a workshop 1–3 October 2002, Dili, East Timor). Eds H da Costa, C Piggin, CJ da Cruz & JJ Fox. 2003. 164 pp.

No. 114 *Modelling nutrient management in tropical cropping systems.* Eds RJ Delve & M Probert. 2004. 138 pp.

No. 115 *Tropical legumes for sustainable farming systems in southern Africa and Australia.* Eds AM Whitbread & BC Pengelly. 2004. 180 pp.

No. 116 *Water in agriculture* (proceedings of a CARDI international conference: 'Research on water in agricultural production in Asia in the 21st century', Phnom Phen, Cambodia, 25–28 November 2003). Eds Vang Seng, E Craswell, Shu Fukai & K Fischer. 2004. 226 pp.

Technical Reports

No. 53 *Cooperatives: issues and trends in developing countries* (report of a workshop held in Perth, 24–25 March 2003). Ed. R Trewin. 2004. 88 pp.

No. 54 *Contract farming in Indonesia: smallholders and agribusiness working together.* I Patrick. 2004. 72 pp.

No. 55 *Chromolaena in the Asia-Pacific region.* Eds MD Day & RE McFadyen. 2004. 52 pp.

No. 56 *Feeds and feeding for inland aquaculture in Mekong region countries.* Eds P Edwards & GL Allan. 2004. 136 pp.

No. 57 *Trials of cold-tolerant eucalypt species in cooler regions of South Central China.* RJ Arnold, B Clarke & J Luo. 2004. 106 pp.

No. 58 *Evaluation of international provenance trials of* Casuarina equisetifolia. K Pinyopusarerk, A Kalinganire, ER Williams & KM Aken. 2004. 106 pp.

ACIAR Working Papers

No. 54 *Mud crab aquaculture in Australia and Southeast Asia: proceedings of a scoping study and workshop.* G Allan & D Fielder. January 2004. 70 pp.

No. 55 *Forages for the red soils area of China.* JM Scott, DA MacLeod, Minggang Xu & AJ Casanova. CD-ROM format only. 2004.

No. 56 *Agricultural research and poverty alleviation: some international perspectives.* J Ryan. 2004. 31 pp.

No. 57 *A survey of marine trash fish and fish meal as aquaculture feed ingredients in Vietnam.* P Edwards, Le Anh Tuan & GA Allan. 2004. 56 pp.

Impact Assessment Series reports

No. 23 *Improved methods for the diagnosis and control of bluetongue in small ruminants and control of bovine ephemeral fever in China.* R McLeod. August 2003. 29 pp.

No. 24 *Assessment of rodent control projects in Vietnam: Adoption and impact.* FG Palis, ZM Sumalde & M Hossain. March 2004. 63 pp.

No. 25 *Genetics of and breeding for rust resistance in wheat in India and Pakistan.* JP Brennan & KJ Quade. April 2004. 36 pp.

No. 26 *Impact assessment of ACIAR-funded projects on grain-market reform in China.* JD Mullen. June 2004. 91 pp.

Research awareness publications

Partners in Research for Development. June 2004.

ACIAR Newsletters Nos 43 (August 2003) & *44* (January 2004).

Productive partnerships: Celebrating 20 years of collaborative research for development between Australia and Thailand. October 2003.

Australia and Indonesia: Twenty years of collaborative fisheries research. 2003.

Corporate publications

ACIAR Annual Report 2002–03. October 2003.

ACIAR Annual Operational Plan 2004–05. June 2004.

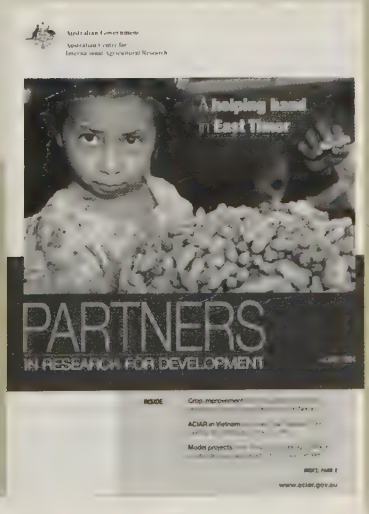
ACIAR's *Partners* Magazine has a new look

We've combined the best of our old *Partners* magazine and our Corporate Newsletter to give you the new look *Partners in Research for Development* magazine.

The magazine is in full colour and provides detailed reports on ACIAR activities with an increased focus on the people who help us achieve our goals. We feature people and their countries who are benefiting from better policies, increased productivity and more sustainable agriculture.

There are reports on our partnerships and projects which are meeting challenges to deliver agricultural research that makes a difference.

Each edition spotlights activities in a country or region, and presents stories grouped thematically around specific agricultural issues.



Partners is freely available from ACIAR's website at www.aciar.gov.au. It is also freely available on request from ACIAR by contacting:

Warren Page,
Executive Editor
Tel: +61 2 6217 0500
Email: comms@aciar.gov.au

Agricultural research for development is critical in feeding the nearly 800 million chronically undernourished people in the world.

In our own Asia-Pacific region—the focus of ACIAR's activities—1.8 billion people live in rural areas. For many of these people even a small improvement in agricultural productivity can translate to large improvements in their livelihood.

Appendix 5: ACIAR staffing statistics

Employees employed under the PS Act	47	(FTE* 44.3)
Median length of APS service	5 years	
Median age	50	
Women as % of total staff	57.4%	
NESB staff as % of total staff	17.0%	
Part-time staff as % of total staff	14.9%	
Non-ongoing staff as % of total staff	21.3%	
Staff turnover in 2003–04	23.4%	

At 30 June 2004 the Centre employed 67 employees, of whom 47 were employed under the *Public Service Act 1999* and were located in Canberra and 20 were at overseas missions and embassies.

Staff employed under the Public Service Act 1999

	Ongoing staff	Non-ongoing staff	Total
Full-time			
Male	14	6	20
Female	19	1	20
Part-time			
Male	0	2	2
Female	3	2	5
Total	36	11	**47 (FTE* 44.3)**

Public Service Act Senior Executive Service staff

The Centre has two Senior Executive Service or equivalent staff: one Chief of Division Grade 1 (equivalent to SES Band 1) and one SES Band 1, both male.

Staff not employed under the Public Service Act—Australia

Four people based in New South Wales provide services under contract for the Fisheries Program.

Staff not employed under the Public Service Act—overseas

ACIAR employs a number of contract and locally engaged staff in Australian overseas missions to provide program support locally, as follows:

Post	Male	Female	Total
Bangkok	1	2	3
Beijing	2	1	3
Hanoi	0	3 (FTE* 2.3)	3 (FTE* 2.3)
Jakarta	1	3	4
Manila	1	2	3
New Delhi	1	1	2
Port Moresby	0	2 (FTE* 1.5)	2 (FTE* 1.5)
Total	6	14 (FTE* 12.8)	**20 (FTE* 18.8)**

**FTE = full-time equivalent*

Staff turnover

Eleven people ceased employment with the Centre during 2003–04. The table below shows a comparison of turnover over the past four years.

	2000–01	2001–02	2002–03	2003–04
Retrenched/annulled			2	1
Promotions/transfers	4	2		1
End of contract	6	5	4	1
Resigned	3	4	3	4
Retired	1	1	1	3
Leave without pay			2	1
Total	14	12	12	**11**

Sick leave and absenteeism

Of a total of 11,500 working days in 2003–04, 3.8 per cent were taken in sick leave (2.8 per cent) and personal leave (1 per cent). This compares with a total of 3.6 per cent (sick leave 2.7 per cent and personal leave 0.9 per cent) in 2002–03.

ACIAR EEO data by classification as at 30 June 2004

(includes non-ongoing staff but excludes inoperative staff on leave without pay)

Classification	M	F	NESB 1	NESB 2	ATSI	PWD	Total
Director	1	0	0	0	0	0	1
Chief of Division Grade 1	1	0	0	0	0	0	1
Senior Executive Service Band 1	1	0	0	0	0	0	1
Executive Level 2 (Senior Principal Research Scientist)	10	0	1*	0	0	0	10
Executive Level 2 (other)	2	3	0	0	0	0	5
Executive Level 1	2	2	0	0	0	0	4
APS L6	0	2	1*	0	0	0	2
APS L5	1	5	3*	1*	0	0	6
APS L4	2	10	1*	1*	0	0	12
APS L3	1	1	0	1*	0	0	2
APS L2	1	2	0	0	0	0	3
Total	22	25	6*	**3***	0	0	47

**Not included in total adding across to final column—total is summation of Male and Female columns.*

EEO abbreviations:

NESB 1 Non-English speaking background, first generation
NESB 2 Non-English speaking background, second generation
ATSI Aboriginal and Torres Strait Islander peoples
PWD People with disabilities

Appendix 6: ACIAR Freedom of Information

The *Freedom of Information Act 1982* (FOI Act) provides a means for individuals to obtain access to Government-held documents, excluding where exemptions are in place. The FOI Act outlines reporting responsibilities of Government departments and agencies in relation to FOI requests. The following statement is made in accordance with Section 8 of the Act.

No requests were made to ACIAR in 2003–04 to supply documents or information as prescribed under the provisions of the FOI Act. No requests are outstanding.

ACIAR received 1,011 requests, made without reference to the FOI Act, for publications produced. The Centre abides by the requirements of the *Privacy Act 1988* in the collection of requests for available publications and in relation to its website.

Administration of the FOI Act

ACIAR is responsible for determinations relating to the granting, withholding or deferring of access to particular documents. The Central Office of the Department of Foreign Affairs and Trade assists ACIAR in administering FOI. Quarterly and annual returns to the Attorney General's Department are coordinated and prepared through the Centre.

The Canberra headquarters of ACIAR and some overseas posts hold documents, with many pre-1990 documents being held in archival custody. These may be obtained under the *Archives Act*.

Inquiries concerning access to documents or other FOI matters should be directed to:

Director
Australian Centre for International Agricultural Research
GPO Box 1571
Canberra ACT 2601
Telephone: (02) 6217 0500
Facsimile: (02) 6217 0501
E-mail: aciar@aciar.gov.au

Public access

ACIAR does not hold documents that are open to the public as part of a public register or otherwise. Publications, including scientific publications of ACIAR-supported research, can be inspected and copies obtained from the Centre's office, with many also available electronically through the ACIAR website (www.aciar.gov.au). A number of other documents are freely available online in accordance with the Government Online initiative.

Documents freely available on request, and increasingly through the ACIAR website, include research-related publications, information sheets on projects, scientific project working papers, research network newsletters, the annual report, *Partners in Research for Development* magazine, and brochures and fact sheets relating to ACIAR activities.

Organisation, function and powers

ACIAR's organisation, functions and powers can be found at Appendix 1 of this report.

Outside participation

ACIAR consults stakeholders both within and outside Australia, on setting research priorities, through formal and informal communication. Project development processes offer opportunities for discussion and inputs from a range of scientists and related organisations, such as universities, departments of agriculture and natural resource management, and other research providers.

ACIAR's Policy Advisory Council provides a formal mechanism for feedback from Australian and international stakeholders. The Council acts as an advisory body to the Minister for Foreign Affairs and meets once a year. The Directors of ACIAR and AusAID sit on the Council as ex officio members.

Categories	Document types
General	• Cables, minutes, memoranda, file notes and other documents concerning international agricultural research activities and projects • Working files with submissions, reports and correspondence on program and project administration, appointment of members to the Policy Advisory Council and Board of Management, and Centre management • Submissions to portfolio Ministers, the Director and senior officers • Ministerial and agency correspondence • Speeches and press statements on international agricultural research in the aid program • Computer disk storage of statistical and other information material
Major policy and procedural documents	• Agenda papers for, and minutes of, meetings of the Board of Management and Policy Advisory Council • Proposals for ACIAR research projects and records of decisions made in-house and by the Board of Management in respect to such proposals • Documents for the development, evaluation, administration and outcomes of ACIAR's research projects • Documents for the administration of ACIAR fellowship schemes • Policy documents and submissions relating to the aid program and scientific research issues • Memoranda of understanding, exchanges of letters and other agreements with foreign governments, and agreements with Australian institutions, relating to international agricultural research activities • Briefs for Australian delegations and Ministers proceeding overseas
Parliamentary matters	• Briefings for Ministers on possible parliamentary questions • Records of appearances by ACIAR officers before the JSCFADT and other parliamentary committees
Management policies and procedures	• Documents on human resource management and personnel policy and practices, including recruitment, staff development, counselling, performance management, EEO, OH&S, industrial relations and workplace bargaining • Documents relating to financial administration and services, including estimates, financial and accounting operations, procurement, contractors, information technology, debtors and payment of claims in Australia and overseas • Documents relating to strategic and corporate planning

Environment Protection and Biodiversity Conservation Act 1999

Act No. 91 of 1999 as amended

Appendix 7: Ecologically sustainable development and environmental performance

The principles of ecologically sustainable development (ESD), outlined in section 3A of the *Environment Protection and Biodiversity Conservation (EPBC) Act 1999*, underpin ACIAR's activities in meeting its obligations as specified under section 160 of the EPBC Act. The following report is provided in accordance with section 516A of the Act.

How the activities of the organisation, and the administration of legislation by the organisation, accord with the principles of ESD (s516A(6)(a))

ACIAR's mandate concerns the commissioning and funding of agricultural research projects that benefit developing countries and Australia, by identifying and developing solutions to agricultural problems.

Under section 160(2) subsection (1)(a), significant environmental impacts arising from contracts, agreements or arrangements entered into as part of the foreign aid program (of which ACIAR is a part) must be approved by the Minister for the Environment.

Operationally this is delivered through project development guidelines stating that organisations developing projects, either as the commissioned (lead) agency or as a collaborator, must fulfil all relevant obligations under international arrangements to which Australia is a signatory (for example the Convention on Biological Diversity), and must fulfil all relevant obligations under the EPBC Act.

Project proposal proformas require the commissioned organisation, and where relevant collaborating organisations, to prove the above through:

1. Documentation of possible negative environmental outcomes from a project, within the context of Environment Australia's *EPBC Administrative Guidelines on Significance* (EPBC Guidelines). The website reference to this document is provided, and reference to ACIAR's obligations under s160 of the EPBC Act established
2. Documentation, where such outcomes may exist, demonstrating that all relevant obligations under the EPBC Act have been fulfilled
3. Documentation showing that all relevant obligations under international arrangements to which Australia is a signatory, specifically for biological resources, have been met
4. Provision of letters of approval relating to the use of experimental animals and/or GMOs
5. Provision of letters confirming compliance with regulations relating to germplasm transfer, quarantine requirements, biosafety, etc.

Project proposals that have met these obligations are then:

1. Assessed in-house by Research Program Managers (RPMs) to determine if environmental impacts outlined in the proposal, having reference to, amongst other documents, the EPBC Guidelines, require action. RPMs are empowered to seek and document, by informal consultation with the EPBC Referrals Unit, whether the impacts are sufficient to warrant a formal referral through the Department of Environment and Heritage (DEH)
2. Examined by ACIAR's formal In-house Review (IHR), which is responsible for assessing and recommending all aspects of project proposals for approval. The IHR may recommend that DEH be contacted to consult on potential impacts, both formally or informally
3. Formally approved by the Director after demonstration that the required processes relating to internal review and, where necessary, referral to the EPBC Referrals Unit has been undertaken
4. Formally signed off by the Board of Management after projects have been approved by IHR, including with reference to project documentation, such as relevant environmental assessments by the RPM and IHR. The Board may seek further information on environmental impacts by referring the project back to the RPM or IHR.

Formal written advice from DEH has not yet needed to be sought, although occasional informal discussions on environmental impacts have clarified particular questions relating to project development.

Training activities, both within projects and also through targeted short courses, help equip partner country researchers with both the means and also mindset of sustainability, which is reinforced through project implementation.

How the outcomes specified in a relevant Appropriations Act contribute to ESD (s516A(6)(b))

ACIAR's mandate established by the Centre's functions as defined in section 5 of the ACIAR Act include the formulation of policies to deliver against this mandate. These policies explicitly link agricultural research with sustainability, both in key planning documents including the 2001–06 Corporate Plan and the Annual Operational Plans released each year, and at the operational level in project development, evaluation and monitoring.

In its Corporate Plan ACIAR recognises the following trends in its operating environment:

- an increasing emphasis on livelihood improvement and ecologically sustainable development
- the potential for climate change … to adversely impact on terrestrial and coastal agriculture and natural systems.

As a result ACIAR's Corporate Plan also identified a strategic need to respond to these factors through alignment of the research program with Australian Government priorities, including the principles of ESD

established under the EPBC Act. The Centre's Annual Operational Plans highlight research priorities that encourage more productive and sustainable agriculture in developing countries and Australia. ACIAR's outcome, 'Agriculture in developing countries and Australia is more productive and sustainable through the application of better technologies, practices, policies and systems', depends on the achievement of the Centre's two outputs. Both are described in page 161.

Output 1, relating to research addressing agricultural and natural resource management problems, is conducted by the funding of organisations to carry out research projects on the Centre's behalf. Proposals for research projects, as outlined above, are now formerly assessed against ESD criteria.

The training of researchers (output 2) focuses on enhancing the scientific skills and capacities of partner country project scientists within the context of research to achieve more productive and sustainable agricultural systems. Building their capacity and transferring skills, such as through a workshop on *Genotype by Environment Analysis* in Cambodia, to equip scientists with the methodologies needed in experiments to introduce crop varieties suitable to local conditions, helps ensure these scientists can continue to adopt the sustainable approach of ACIAR and its Australian project partners after the research has concluded.

Effect of the organisation's activities on the environment (516A(6)(c))

Sustainable production systems are a basic tenet of all ACIAR-supported research projects. All ACIAR programs can, given the scope of projects, deliver environmental conservation benefits, such as:

- Fisheries projects manage serious adverse environmental impacts arising from fishing or farming practices through improved monitoring and establishment of sustainable catch levels, and reseeding and redevelopment of collapsed and threatened fisheries.
- Projects in the Forestry program contribute to natural resource conservation and rehabilitation through supporting the establishment, management and sustainable use of forests and plantations, including through equipping Pacific Island countries in forest health surveillance methodologies.
- Land and Water Resources research aims to manage and conserve water resources, such as early intervention to minimise the extraction of groundwater in the Philippines and management of scarce water resources used for irrigation in China's Zhange Irrigation scheme, and development of methods and technologies to alleviate the affects of salinity and soil acidification in Thailand, Lao PDR and Australia.
- Projects in the Crop Improvement and Management program utilise the resources of International Agricultural Research Centres to support the collection and conservation of unique crop and legume germplasm from their countries of origin for screening of desirable traits in managing climatic and disease restrictions to existing staple food crops and the long-term regeneration, storage and maintenance of these collections.

- The Agricultural Systems Economics and Management program commissions research on integrated economic, social and biophysical systems leading to improved agricultural productivity and natural resource management such as furthering the development of Landcare in the Philippines and management of rodents by sustainable practices in Cambodia.
- The Agricultural Development Policy program supports economic policy research in the areas of trade, rural development and natural resource management, such as analysis of policy linkages between agriculture, trade and the environment in Indonesia and sustainable management of the live-reef fish trade in the Solomon Islands.

ACIAR projects may also yield results applicable to environmental management in Australia, although these benefits are either built into projects as a secondary objective or are the result of research aimed at developing country problems. An example is past project work to develop computer simulation modelling in African farming contexts. Research commissioned by ACIAR contributed to the development of Agricultural Production Systems sIMulator (APSIM), a computer-based model for simulating inputs to farming systems. APSIM is being used in Australian and overseas farming contexts, allowing virtual experimentation in crop and soil management in farming systems.

Measures being taken by the organisation to minimise the impact of its activities on the environment (s516A(6)(d))

Environmental performance in ACIAR's premises is an important consideration in the management of the working environment. ACIAR has less than 50 staff housed in its headquarters, of which it is the sole occupant, being responsible for the management of all infrastructure and implementation of policies to deliver sound environmental management.

The following organisational practices are in place to reduce the environmental impact of the Centre's operations:

- the use of low energy consumption rating fluorescent light tubes that are controlled by a timer operating between 8am and 8pm, with all but essential security lighting turned off outside these hours
- encouraging staff to switch off appliances and lighting when not in use at the end of the day
- programming of all computer equipment to the power saver function to improve energy saving
- the use of paper and other waste recycling bins including collection by authorised waste recyclers
- encouraging staff to print and photocopy on both sides of paper, and reusing paper in fax machines, with total paper usage of 1,264 reams of paper in 2003–04. This will be a benchmark to measure use in 2004–05
- using new appliances that have a four-star or better energy rating under the Appliance Energy Efficiency rating label scheme.

In 2003–04 ACIAR's energy usage (electricity is used, no natural gas or other fuels are used) was 335,974 kilowatt hours (kwh), an increase of 10,703 kwh from 2002–03. Electricity consumption comprises tenant usage (light and power) and central services (airconditioning and other mechanical devices). Figures provided by ACTEW are based on the readings of a single meter recording all consumption. In reporting on power consumption ACIAR has adopted a 50:50 split between tenant usage and central services. From July 2004 a second meter has been installed to record consumption by ACIAR's air-conditioning unit. This will allow monitoring of daily usage, allowing adjustment of energy usage while still meeting workplace comfort levels. Ten per cent of the electricity consumed is allocated as ACTEW's GreenPower initiative, funding the development of environmentally friendly energy options.

The rise of 10,703 kwh was due to:

- A malfunction in June 2004 in the programming of ACIAR's after-hours lighting systems, which resulted in the non-operation of the auto-program to turn off these lights. This malfunction was difficult to locate and took time to repair.
- An adjustment to the air-conditioning system of a rise of 1 degree in temperature, to provide a more comfortable working environment.

Energy-saving options are utilised wherever possible, with these having now been fitted to the building's air-conditioning system. Full details on energy consumption are available in the annual *Energy Use in Commonwealth Operations* publication.

Water usage in ACIAR decreased significantly in 2003–04, from 3755 kilolitres in 2002–03 down to 1464 kilolitres. A significant factor in this reduction was the implementation of water restrictions in the ACT, which ACIAR complied with.

Mechanisms, if any, for reviewing and increasing the effectiveness of these measures (s516A(6)(e))

ACIAR does not have a formal environmental management system (EMS), as indications are that this is not cost-effective for a small agency. ACIAR has, however, adopted the EMS framework (particularly the 'initial environmental review') to guide development of the above organisational practices and to guide the development of new initiatives and actions.

Appendix 8: Compliance checklist

Part of Report	Description	Requirement	Page
	Letter of transmittal	Mandatory	i
	Table of contents	Mandatory	iii
	Index	Mandatory	190
	Glossary	Mandatory	188
	Contact officer(s)	Mandatory	ifc*
	Internet home page address and Internet address for report	Mandatory	ifc*
Review by Director	Review by Director	Mandatory	5/9
	Summary of significant issues and developments	Suggested	1/16
	Overview of department's performance and financial results	Suggested	1/16; 104/105
	Outlook for following year	Suggested	9
	Significant issues and developments – portfolio	Portfolio departments – suggested	n.a.
ACIAR overview	Overview description	Mandatory	17/90
	Role and functions	Mandatory	159
	Organisational structure	Mandatory	160
	Outcome and output structure	Mandatory	161
	Where outcome and output structures differ from PBS format, details of variation and reasons for change	Mandatory	n.a.
	Portfolio structure	Portfolio departments – mandatory	n.a.
Report on performance	Review of performance during the year in relation to outputs and contribution to outcomes	Mandatory	146
	Actual performance in relation to performance targets set out in PBS/ PAES	Mandatory	144/146
	Performance of purchaser/ provider arrangements	If applicable, mandatory	n.a.
	Where performance targets differ from the PBS/ PAES, details of both former and new targets, and reasons for the change	Mandatory	144/147
	Narrative discussion and analysis of performance	Mandatory	17/90
	Trend information	Suggested	v–vii; 153
	Factors, events or trends influencing performance	Suggested	1/16
	Significant changes in nature of principal functions/ services	Suggested	n.a.
	Performance against service charter customer service standards, complaints data, and ACIAR's response to complaints	If applicable, mandatory	n.a.
	Social justice and equity impacts	Suggested	n.a.

** Inside front cover*

	Discussion and analysis of ACIAR's financial performance	Mandatory	104/105
	Discussion of any significant changes from the prior year or from budget	Suggested	n.a.
	Summary resource tables by outcomes	Mandatory	146
	Developments since the end of the financial year that have affected or may significantly affect ACIAR's operations or financial results in future	If applicable, Mandatory	iv
Management accountability			
Corporate Governance	Statement of the main corporate governance practices in place	*Mandatory*	93
	Names of the senior executive and their responsibilities	Suggested	ibc*
	Senior management committees and their roles	Suggested	98/99
	Corporate and operational planning and associated performance reporting and review	Suggested	139/143; 147; 17/90
	Approach adopted to identifying areas of significant financial or operational risk and arrangements in place to manage risks	Suggested	98/100
	Certification of fraud measures in place	Mandatory	98
	Policy and practices on the establishment and maintenance of appropriate ethical standards	Suggested	95
	How nature and amount of remuneration for senior executive service employees officers is determined	Suggested	96; 154
External Scrutiny	Significant developments in external scrutiny	*Mandatory*	156
	Judicial decisions and decisions of administrative tribunals	Mandatory	156
	Reports by the Auditor-General, a Parliamentary Committee or the Commonwealth Ombudsman	Mandatory	156
Management of Human Resources	Assessment of effectiveness in managing and developing human resources to achieve departmental objectives	*Mandatory*	153/155
	Workforce planning, staff turnover and retention	Suggested	176/177
	Impact and features of certified agreements and AWAs	Suggested	154
	Training and development undertaken and its impact	Suggested	154
	Occupational health and safety performance	Suggested	155
	Productivity gains	Suggested	154
	Statistics on staffing	Mandatory	176/177
	Certified agreements and AWAs	Mandatory	154
	Performance pay	Mandatory	154

** Inside back cover*

	Contracts exempt from Purchasing and Disposal Gazette	Mandatory	156/157
Assets management	Assessment of effectiveness of assets management	If applicable, mandatory	n.a.
Purchasing	Assessment of purchasing against core policies and principles	Mandatory	156/157
Consultants	Number of consultancy services contracts let and total expenditure on consultancy services. (Additional information as in Attachment C to be available on request or published.)	Mandatory	157
Competitive Tendering and Contracting	Competitive tendering and contracting contracts let and outcomes	Mandatory	157
	Absence of contractual provisions allowing access by the Auditor-General	Mandatory	157
Exempt contracts	Contracts exempt from the Purchasing and Disposal Gazette		156/157
Commonwealth Disability Strategy	Report on performance in implementing the Commonwealth Disability Strategy	Mandatory	154
Financial Statements	Financial Statements	Mandatory	106/137
Other Information			
	Occupational health and safety (section 74 of the *Occupational Health and Safety (Commonwealth Employment) Act 1991*)	Mandatory	155
	Freedom of Information (subsection 8(1) of the *Freedom of Information Act 1982*)	Mandatory	178
	Advertising and Market Research (Section 311A of the *Commonwealth Electoral Act 1918*)	Mandatory	157
	Ecologically sustainable development and environmental performance (Section 516A of the *Environment Protection and Biodiversity Conservation Act 1999*)	Mandatory	180/184
Other	Discretionary Grants	Mandatory	157
	Correction of material errors in previous annual report	If applicable, mandatory	n.a.

List of acronyms and abbreviations

ACIAR	Australian Centre for International Agricultural Research
ANAO	Australian National Audit Office
APAARI	Asia-Pacific Association of Agricultural Research Institutes
APAFRI	Asia-Pacific Association of Forestry Research Institutes
APS	Australian Public Service
APSIM	Agricultural Production Systems sIMulation (model)
ATSE	Academy of Technological Sciences and Engineering (Australia)
AusAID	Australian Agency for International Development
AYAD	Australian Youth Ambassadors for Development
CABI	Centre for Agriculture and Biosciences International (UK)
CARD	Capacity-building for Agriculture and Rural Development (Vietnam)
CDS	Commonwealth Disability Strategy
CEO	Chief Executive Officer
CGIAR	Consultative Group on International Agricultural Research
CIAT	International Center for Tropical Agriculture (Colombia)
CIFOR	Center for International Forestry Research (Indonesia)
CIMMYT	International Maize and Wheat Improvement Center (Mexico)
CIP	International Potato Centre (Peru)
CSF	Classical Swine Fever
CSIRO	Commonwealth Scientific and Industrial Research Organisation (Australia)
CTBS	Community Trap Barrier System
DAFF	Department of Agriculture, Fisheries and Forestry – Australia
DNA	deoxyribonucleic acid
DPRK	Democratic People's Republic of Korea
DREAM	Dynamic Research EvaluAtion for Managers
EAP	Employee Assistance Program
EEO	equal employment opportunity
ELISA	enzyme linked immunosorbent assay
EPBC	Environment Protection and Biodiversity Conservation (Act)
ESD	Ecologically Sustainable Development
FAO	Food and Agriculture Organisation
FMA (Act)	Financial Management and Accountability (Act 1997)
FMD	foot-and-mouth disease
FOI	Freedom of Information
FTE	full time equivalent (staff)
GxE	Genotype by Environment (studies)
GIS	Geographic Information System
GRDC	Grains Research and Development Corporation
HR	Human Resources
IARCs	International Agricultural Research Centres
IAU	Impact Assessment Unit
ICARDA	International Centre for Agricultural Research in the Dry Areas (Syria)

ICRISAT	International Crop Research Institute for the Semi-arid Tropics (India)
ICTs	Information and Communication Technologies
IDM	Integrated Disease Management
IFPRI	International Food Policy Research Institute (USA)
IHR	In House Review
IITA	International Institute of Tropical Agriculture
ILRI	International Livestock Research Institute (Kenya)
IPGRI	International Plant Genetic Resources Institute (Italy)
IPM	Integrated Pest Management
IRM	Integrated Rodent Management
IRRI	International Rice Research Institute (Philippines)
IWMI	International Water Management Institute
MAAH	Ministry of Agriculture and Animal Health (Afghanistan)
MFI	Micro-finance institute
MOU	Memorandum of Understanding
NESB	non English speaking background
NGO	non government organisation
NVS	native vegetative strip
OHS	Occupational health and safety
PDAS	Performance Development and Appraisal Scheme (ACIAR)
PIC	Pacific Island countries
PNG	Papua New Guinea
R&D	Research and Development
RPM	Research Program Manager
RSA	Republic of South Africa
SARS	Severe Acute Respiratory Syndrome
SES	Senior Executive Service
SPC	Secretariat of the Pacific Community
WTO	World Trade Organisation

A

Accountability framework 92

ACIAR Act ii, 92, 93, 95, 97, 101, 102, 159, 181

ACIAR Mission ii, 138, 139

ACIAR Outcome ii, 138, 139

ACIAR Vision ii, 10, 138, 139

Acronyms and abbreviations 188

Adoption studies 14

Afghanistan
expenditure 67
projects 173

Annual Operational Plan iii, 6, 8, 41, 95, 138, 141, 147, 161

ATSE Crawford Fund 50, 80, 81

Audit Committee 98, 99

Audit plan 2002–05 100

Australian Youth Ambassadors for Development 12, 58, 80

B

Bangladesh
expenditure 66
projects 162

Basis of authority 159

Bhutan
expenditure 68
projects 162

Bilateral projects 162

Board of Management i, 93, 159
composition 93
conflict of interest 95
meetings 93
performance 95
post 30 June developments 96

Building research capacity 80

Burma
expenditure 28
projects 162

C

CABI 75

Cambodia
expenditure 29
projects 162

Certified Agreement 143, 154

Chair's review 1

Chief Finance Officer's review 104

China
expenditure 54
projects 162

Commonwealth Disability Strategy (CDS) 154

Communications and Information Services 84

Communicating research 83

Competitive tendering 157

Compliance checklist 185

Consultants 157

Corporate Plan ii, 11, 98, 139, 161, 181

D

Democratic People's Republic of Korea
expenditure 59
projects 163

Director's role 101

Director's review 5

E

East Timor
expenditure 31
projects 163

Ecologically sustainable development and environmental performance 180

External scrutiny and auditing 156

F

Fellowships 80
four year snapshot v

Financial accountability and compliance 97

Financial statements 106
Independent Audit report 107
Notes to and forming part of the financial statements 114
Schedule of commitments 112
Schedule of contingencies 113
Statement by Director and Chief Finance Officer 108
Statement of cash flows 111
Statement of financial performance 109
Statement of financial position 110

Four-year snapshot v

Freedom of Information 178

Functions ii, 159

G

Governance vii, 2, 156, 186

I

Impact Assessment viii, 12, 86

India
expenditure 61
projects 164

Indonesia
expenditure 32
projects 164

Insurance 156

International Support 147

J

John Allwright Fellowship vii, 15, 16, 62, 80

John Dillon Memorial Fellowship 80, 82

Judicial decisions 156

L

Laos
expenditure 39
projects 166

M

Making a difference 10

Malaysia
expenditure 41
projects 167

Measuring research impacts 86

Ministerial delegations, instruments and directions 95

Multilateral projects 172

N

Nepal
expenditure 69
projects 167

Next steps vii

O

Occupational Health and Safety 155

Organisational structure 160

Outcomes and outputs framework 161

P

Pacific Island countries
expenditure 23
projects: Fiji 163
projects: Kiribati 166
projects: Samoa 169
projects: Solomon Islands 169
projects: Tonga 171
projects: Tuvalu 171
projects: Vanuatu 171

Pakistan
expenditure 65
projects 167

Papua New Guinea
expenditure 19
projects 167

Philippines
expenditure 42
projects 168

Planning 99

Policy Advisory Council 102
composition 103
meetings 102

Portfolio Budget Statement iii, 144, 161

Publications 174

Purchasing 156

R

Regional achievements
North Asia 53
Papua New Guinea and the Pacific Islands 18
Southeast Asia 27
Southern Africa 71
South Asia 60

Management of human resources 153

Risk management 98

S

Siaguru, Sir Anthony 102

Southern Africa
expenditure 72
projects 170

Sri Lanka
expenditure 70
projects 170

Staffing statistics 176

T

Tendering 187

Thailand
expenditure 46
projects 170

Tracking performance—
against Australia's National Research Priorities 148
against the 2001–06 Corporate Plan 139
against the 2003–04 Annual Operational Plan 147
against the 2003–04 Portfolio Budget Statement 144

Training and development 154

V

Variation to Certified Agreement 154

Vietnam
expenditure 48
projects 171

W

Workplace Diversity Plan 155

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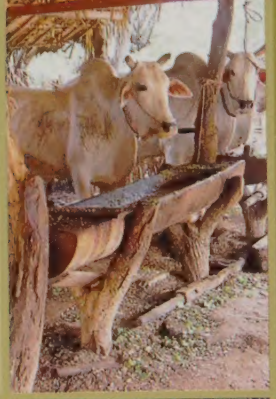

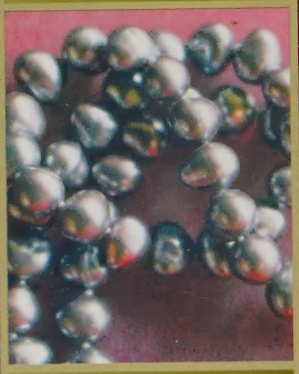

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ACIAR forms part of Australia's official development assistance program and works toward the aid program's objective of advancing Australia's national interest by assisting developing countries to reduce poverty and achieve sustainable development.

ACIAR therefore works collaboratively with AusAID in areas of mutual priority, with both organisations contributing to the whole-of-government emphasis of the aid program.

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